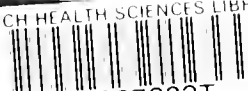


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IN THIS ISSUE:

Maternal Deaths from Hemorrhage in North Carolina, 1946-65

FRANK C. GREISS, JR., M.D., STEPHEN G. ANDERSON, M.D., AND W. JOSEPH MAY, M.D.

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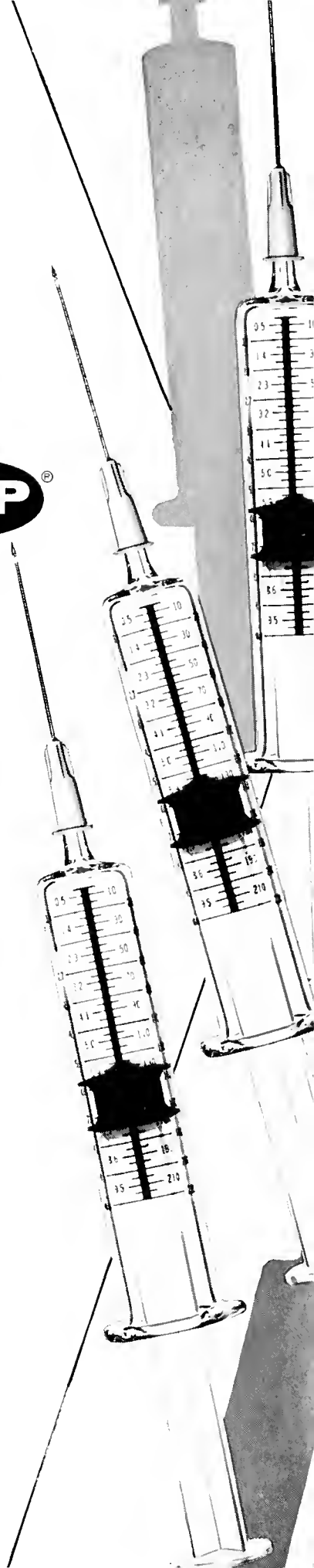
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JANUARY, 1969

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C O N T E N T

ORIGINAL ARTICLES

- Maternal Deaths from Hemorrhage in North Carolina, 1946-1965—Frank C. Greiss, Jr., M.D., Stephen G. Anderson, M.D., and W. Joseph May, M.D. 1
- Perinatal Mortality in North Carolina Counties: A Report for the Committee on Maternal Health, Medical Society of the State of North Carolina—Herbert E. Bill, M.D., M.P.H. 6
- Language Difficulty: An Analysis of Proficiency and Development—Viola P. Willis, M.S., and Raymond Massengill, Jr., Ed.D. 18
- The Doctor and the Modern Community Hospital: A Partnership in a Changing Society—John Glas-son, M.D. 20

EDITORIALS

- Suggestions for Authors 26
- The AMA at Miami 27
- Obstetric Hemorrhage 28
- Quality Control 28
- Ortho Diagnostics Returns to the Fold 29

BULLETIN BOARD

- Coming Meetings 30
- News Notes from the University of North Carolina School of Medicine 30
- News Notes from the Duke University Medical Center 31
- News Notes from the Bowman Gray School of Medicine of Wake Forest University 33
- North Carolina Heart Association 35
- North Carolina Mental Health Commission 36
- North Carolina Blue Cross and Blue Shield 36
- Mental Health Committee 36
- Announcements 37

THE MONTH IN WASHINGTON

38

IN MEMORIAM

39

CLASSIFIED ADS

40

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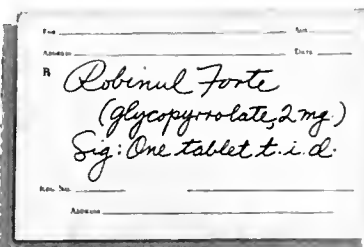
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Warnings: **USE IN PREGNANCY:** Safety for use during pregnancy or lactation has not been established; therefore, it should be used in pregnant patients or women of child-bearing age only when the physician judges its use essential to the patient's welfare.

Precautions: Keep out of reach of children. Not recommended for patients 12 years old or less. Carefully supervise dose and amounts prescribed, especially for patients prone to overdose themselves. Excessive prolonged use of meprobamate in susceptible persons—as alcoholics, ex-addicts, severe psychoneurotics—has resulted in dependence or habituation. Withdraw gradually after prolonged excessive dosage to avoid possibly severe withdrawal reactions including epileptiform seizures. Warn patients of possible reduced alcohol tolerance, with resultant slowed reactions and impaired judgment and coordination. If drowsiness, ataxia or visual disturbances (impairment of accommodation and visual acuity) occur, reduce dose. If symptoms persist, patients should not operate machinery or drive. After meprobamate overdose, prompt sleep, reduction of blood pressure, pulse and respiratory rates to basal levels, and hyperventilation are reported. Give cautiously and in small amounts to patients with suicidal tendencies. Treat attempted suicide (has resulted in coma, shock, vasomotor and respiratory collapse and anuria) with gastric lavage and appropriate symptomatic therapy (CNS stimulants and pressor amines as indicated). Two instances of accidental or intentional significant overdosage with ethoheptazine and aspirin have been reported. These were accompanied by CNS depression (drowsiness and lightheadedness) but resulted in uneventful recovery. On basis of pharmacologic data, CNS stimulation could be anticipated, with nausea, vomiting and salicylate intoxication (requires induced vomiting or gastric lavage, specific parenteral electrolyte therapy for ketoacidosis and dehydration, and observation for hypoprothrombinemic hemorrhage [usually requires whole blood transfusions]).

Adverse Reactions: Ethoheptazine and aspirin may cause nausea with or without vomiting and epigastric distress, in a small percentage of patients. Dizziness is rare at recommended dosage. Meprobamate may cause drowsiness, ataxia and rarely allergic or idiosyncratic reactions. These reactions, sometimes severe, can develop in patients receiving only 1 to 4 doses. Such patients may have had no previous contact with meprobamate and may or may not have an allergic history. Mild reactions are characterized by urticarial or erythematous maculopapular rash. Acute nonthrombocytopenic purpura with cutaneous petechiae, ecchymoses, peripheral edema and fever have been reported. If allergic reaction occurs, discontinue meprobamate; do not reinstitute. Severe reactions, observed very rarely, include fever, fainting spells, angioneurotic edema, bronchial spasms, hypotensive crises (1 fatal case), anaphylaxis, stomatitis and proctitis (1 case) and hyperthermia. These cases should be treated symptomatically including, when indicated, such medication as epinephrine, antihistamine and possibly hydrocortisone. A few cases of leukopenia, usually transient, have been reported on continuous use. Rarely, aplastic anemia (1 fatal case), thrombocytopenic purpura, agranulocytosis, and hemolytic anemia have been reported, almost always in presence of known toxic agents.

Overdosage: See precautions section for management of overdosage.

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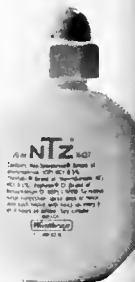
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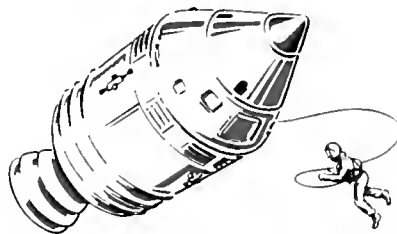
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Indications: Infections susceptible to oral penicillin G: prophylaxis and treatment of streptococcal infections; treatment of pneumococcal, gonococcal, and susceptible staphylococcal infections; prophylaxis of rheumatic fever in patients with a previous history of the disease.

Contraindications: Infections caused by nonsusceptible organisms; history of penicillin sensitivity.

Warnings: Acute anaphylaxis (may prove fatal unless promptly controlled) is rare but more frequent in patients with previous penicillin sensitivity, bronchial asthma or other allergies. Resuscitative (epinephrine, aminophylline, pressor amines) and supportive (antihistamines, methylprednisolone sodium succinate) drugs should be readily available. Other rare hypersensitivity reactions include nephropathy, hemolytic anemia, leucopenia and thrombocytopenia.

In suspected hypersensitivity, evaluation of renal and hematopoietic systems is recommended.

Precautions: In suspected staphylococcal infections, perform proper laboratory studies including sensitivity tests. If overgrowth of nonsusceptible organisms occurs (constant observation is essential), discontinue penicillin and take appropriate measures. Whenever allergic reactions occur, withdraw penicillin unless condition being treated is considered life threatening and amenable only to penicillin. Penicillin may delay or prevent appearance of primary syphilitic lesions. Gonorrhea patients suspected of concurrent syphilis should be tested serologically for at least 3 months. When lesions of primary syphilis are suspected, dark-field examination should precede use of penicillin. Treat beta-hemolytic streptococcal infections with full therapeutic dosage for at least 10 days to prevent rheumatic fever or glomerulonephritis. In staphylococcal infections, perform surgery as indicated.

Adverse Reactions: (Penicillin has significant index of sensitization): Skin rashes, ranging from maculopapular eruptions to exfoliative dermatitis; urticaria; serum sickness-like reactions, including chills, fever, edema, arthralgia and prostration. Severe and often fatal anaphylaxis has been reported (see "Warnings").

Composition: Tablets—125 mg. (200,000 units), 250 mg. (400,000 units), 500 mg. (800,000 units); Liquid—125 mg. (200,000 units) and 250 mg. (400,000 units) per 5 cc.

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ORAL **PEN·VEE® K**

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you and your patient bring high blood pressure
down and keep it down.

Regroton produces a smooth, long-acting effect that
usually reduces both systolic and diastolic pressures.
At the same time it often acts to allay anxiety and
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Although Regroton is generally well tolerated, adverse reactions
may occur. This drug is contraindicated in mental depression,
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hepatic diseases. For a complete list of side effects, please see the
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Regroton[®]

chlorthalidone 50 mg.
reserpine 0.25 mg.

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Indications: Hypertension. **Contraindications:** History of mental depression, hypersensitivity, and most cases of severe renal or hepatic diseases. **Warning:** With the administration of enteric-coated potassium supplements, which should be used only when adequate dietary supplementation is not practical, the possibility of small-bowel lesions (obstruction, hemorrhage, and perforation) should be kept in mind. Surgery for these lesions has frequently been required and deaths have occurred. Discontinue coated potassium-containing formulations immediately if abdominal pain, distention, nausea, vomiting, or gastrointestinal bleeding occur. Discontinue one week before electroshock therapy, and if depression or peptic ulcer occurs. **Use in pregnancy:** Because chlorthalidone may cross the placental barrier and appear in cord blood and thiazides may appear in breast milk, this drug should be used with care in pregnant patients and nursing mothers. When used in women of childbearing age, the potential benefits of the drug should be weighed against the possible hazards to the fetus. Use of chlorthalidone may result in fetal or neonatal jaundice, thrombocytopenia, and possibly other adverse reactions which have occurred in the adult. Increased respiratory secretions, nasal congestion, cyanosis and anorexia may occur in infants born to reserpine-treated mothers. **Precautions:** Antihypertensive therapy with this drug should always be initiated cautiously in postsympathectomy patients and in patients receiving ganglionic blocking agents, other potent antihypertensive drugs, or curare. Reduce dosage of concomitant antihypertensive agents by at least one-half. To avoid hypotension during surgery, discontinue therapy with this agent two weeks prior to elective surgical procedures. In emergency surgery, use, if needed, anticholinergic or adrenergic drugs or other supportive measures as indicated. Because of the possibility of progression of renal damage, periodic kidney function tests are indicated. Discontinue if the BUN rises or liver dysfunction is aggravated. Hepatic coma may be precipitated. Electrolyte imbalance, sodium and/or potassium depletion may occur. If potassium depletion should occur





during therapy, the drug should be discontinued and potassium supplements given, provided the patient does not have marked oliguria. Take particular care in cirrhosis or severe ischemic heart disease and in patients receiving corticosteroids, ACTH, or digitalis. Severe salt restriction is not recommended. Use cautiously in patients with ulcerative colitis or gallstones (biliary colic may be precipitated). Bronchial asthma may occur in susceptible patients.

Adverse Reactions: The drug is generally well tolerated. The most frequent side effects are nausea, gastric irritation, vomiting, diarrhea, constipation, muscle cramps, headache, dizziness and acute gout. Other potential side effects include angina pectoris, anxiety, depression, bradycardia and ectopic cardiac rhythms (especially when used with digitalis), drowsiness, dull sensorium, hyperglycemia and glycosuria, hyperuricemia, lassitude, restlessness, transient myopia, impotence or dysuria, orthostatic hypotension which may be potentiated when chlorthalidone is combined with alcohol, barbiturates or narcotics, leukopenia, aplastic anemia, skin rashes, thrombocytopenia, agranulocytosis, nasal stuffiness, increased gastric secretions, nightmare, purpura, urticaria, ecchymosis, weakness, uveitis, optic atrophy and glaucoma, and pruritus. Eruptions and/or flushing of the skin, a reversible paralysis agitans-like syndrome, blurred vision, conjunctival injection, increased susceptibility to colds, dyspnea, weight gain, decreased libido, dryness of the mouth, deafness, anorexia, and pancreatitis when epigastric pain or unexplained G.I. symptoms develop after prolonged administration. Jaundice, xanthopsia, paresthesia, photosensitization and necrotizing angitis are possible. **Average Dosage:** One tablet daily with breakfast. **Availability:** Pink, single-scored tablets in bottles of 100 and 1000.

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guard susceptible patients against intestinal monilial overgrowth during broad-spectrum therapy—the protection of DECLOSTATIN is combined with demethylchlortetracycline in DECLOSTATIN.

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Contraindication: History of hypersensitivity to demethylchlortetracycline or nystatin.

Warning: In renal impairment, usual doses may lead to excessive accumulation and liver toxicity. Under such conditions, lower than usual doses are indicated, and, if therapy is prolonged, serum level determinations may be advisable. A photodynamic reaction to natural or artificial sunlight has been observed. Small amounts of drug and short exposure may produce an exaggerated sunburn reaction which may range from erythema to severe skin manifestations. In a smaller proportion, photoallergic reactions have been reported. Patients should avoid direct exposure to sunlight and discontinue drug at the first evidence of skin discomfort. Necessary subsequent courses of treatment with tetracyclines should be carefully observed.

Precautions: Overgrowth of nonsusceptible organisms may occur. Con-

stant observation is essential. If new infections appear, appropriate measures should be taken.

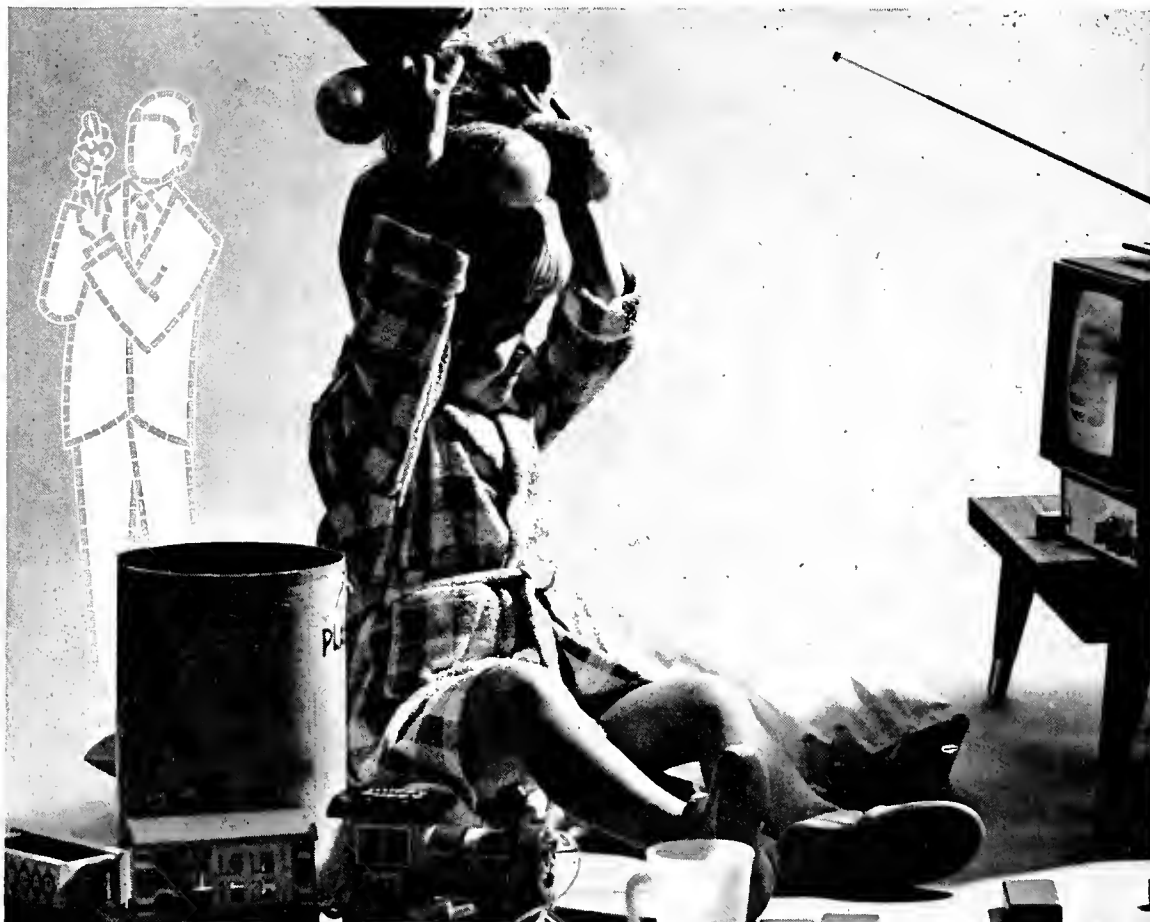
In infants, increased intracranial pressure with bulging fontanels has been observed. All signs and symptoms have disappeared rapidly upon cessation of treatment.

Side Effects: Gastrointestinal system—anorexia, nausea, vomiting, diarrhea, stomatitis, glossitis, enterocolitis, pruritus ani. Skin—maculopapular and erythematous rashes; a rare case of exfoliative dermatitis has been reported. Photosensitivity: onycholysis and discoloration of the nails (rare). Kidney—rise in BUN, apparently dose related. Transient increase in urinary output, sometimes accompanied by thirst (rare). Hypersensitivity reactions—urticaria, angioneurotic edema, anaphylaxis. Teeth—dental staining (yellow-brown) in children of mothers given this drug during the latter half of pregnancy, and in children given the drug during the neonatal period, infancy and early childhood. Enamel hypoplasia has been seen in a few children. If adverse reaction or idiosyncrasy occurs, discontinue medication and institute appropriate therapy.

Average Adult Daily Dosage: 150 mg q.i.d. or 300 mg b.i.d. Should be given 1 hour before or 2 hours after meals, since absorption is impaired by the concomitant administration of high calcium content drugs, foods and some dairy products. Treatment of streptococcal infections should continue for 10 days, even though symptoms have subsided.

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Description: V-Cillin K, the potassium salt of V-Cillin[®] (phenoxyethyl penicillin, Lilly), combines acid stability with immediate solubility and rapid absorption. Higher, more rapid serum levels are obtained than with equal oral doses of penicillin G.

Indications: Streptococcus, pneumococcus, and gonococcus infections; infections caused by sensitive strains of staphylococci; prophylaxis of streptococcus infections in patients with a history of rheumatic fever; and prevention of bacterial endocarditis after tonsillectomy and tooth extraction in patients with a history of rheumatic fever or congenital heart disease.

Contraindication: Penicillin hypersensitivity.

Warnings: In rare instances, penicillin may cause acute anaphylaxis which may prove fatal unless promptly controlled. This type of reaction appears more frequently in patients with a history of sensitivity reactions to penicillin or with bronchial asthma or other allergies. Resuscitative drugs should be readily available. These include epinephrine and pressor drugs (as well as oxygen for inhalation) for immediate allergic manifestations and antihistamines and corticosteroids for delayed effects.

Precautions: Use cautiously, if at all, in a patient with a strongly positive history of allergy.

In prolonged therapy with penicillin, and particularly with high parenteral dosage schedules, frequent evaluation of the renal and hematopoietic systems is recommended.

In suspected staphylococcus infections, proper laboratory studies (including sensitivity tests) should be performed.

The use of penicillin may be associated with the overgrowth of penicillin-insensitive organisms. In such cases, discontinue administration and take appropriate measures.

Adverse Reactions: Although serious allergic reactions are much less common with oral penicillin than with intramuscular forms, manifestations of penicillin allergy may occur.

Penicillin is a substance of low toxicity, but it possesses a significant index of sensitization. The following hypersensitivity reactions have been reported: skin rashes ranging from maculopapular eruptions to exfoliative dermatitis; urticaria; and reactions resembling serum sickness, including chills, fever, edema, arthralgia, and prostration. Severe and often fatal anaphylaxis has occurred (see Warnings). Hemolytic anemia, leukopenia, thrombocytopenia, and nephropathy are rarely observed side-effects and are usually associated with high parenteral dosage.

Administration and Dosage: Usual dosage range, 125 mg. (200,000 units) three times a day to 500 mg. (800,000 units) every four hours. For infants, 50 mg. per Kg. per day divided into three doses.

See package literature for detailed dosage instructions for prophylaxis of streptococcus infections, surgery, gonorrhea, and severe infections.

How Supplied: Tablets V-Cillin K[®] (Potassium Phenoxyethyl Penicillin Tablets, U.S.P.), 125 mg. (200,000 units), 250 mg. (400,000 units), and 500 mg. (800,000 units).

V-Cillin K[®] (potassium phenoxyethyl penicillin, Lilly), Pediatric, for Oral Solution, 125 mg. (200,000 units) and 250 mg. (400,000 units) per 5 cc. of solution (approximately one teaspoonful).

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Additional information available to physicians upon request.



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Maternal Deaths from Hemorrhage in North Carolina 1946-1965

FRANK C. GREISS, JR., M.D., STEPHEN G. ANDERSON, M.D., AND W. JOSEPH MAY, M.D.

Hemorrhagic complications of pregnancy constitute the leading cause of maternal mortality in North Carolina. From 1946 through 1965 they comprised one-fourth of all maternal deaths. Although the death rate from hemorrhage has decreased progressively during the 20-year period, paralleling the decrease in the total maternal death rate, the proportionate occurrence of such deaths has remained essentially constant. Given the vision of improved prenatal care and increased availability of rapid transportation, blood, hospital facilities, and physician care which were to occur in North Carolina, one would have predicted in 1946 that maternal deaths from hemorrhage would be rarities in 1965. This has occurred in some areas of the United States but not in North Carolina. Therefore, the purpose of this paper is to present and comment upon those factors which elucidate the inordinately high rate of these almost completely preventable deaths.

Material and Methods

Definitions and methods of analysis of maternal deaths in North Carolina from August 1, 1946 until December 31, 1965 have been presented previously.¹ Statistics relating total maternal deaths to those from hemorrhage are presented in Table 1 in five-year groupings. Further analysis of the deaths from hemorrhage constitutes the basis of this report.

Results

Occurrence of deaths according to duration of pregnancy in each five-year interval was quite similar to the over-all occurrence statistics shown in Table 2. Roughly one-fifth

For Editorial Comment See Page 27

of all deaths occurred before 20 weeks' gestation and more than two-thirds of these were related to ectopic pregnancy. The low incidence of deaths from abortion reflects the fact that the major lethal factor in such deaths has been infection. Even in abortion deaths from hemorrhage, infection was a major contributing factor in 28.6%. Eighty per cent of deaths occurred after 28 weeks' gestation. Of these, 90.7% occurred postpartum, 6.0% antepartum and 3.3% intrapartum. Toxemia of pregnancy was a major contributing factor in 22.5% of deaths beyond 20 weeks gestation.

Obstetric complications initiating the hemorrhagic process in those pregnancies beyond 20 weeks' gestation are shown in Table 3. The frequencies of premature placental separation, retained secundines, and lacerations of the cervix and vagina were essentially constant from 1946 to 1965, whereas those for placenta previa and postpartum uterine atony progressively decreased. Lethal hypofibrinogenemia occurred in only 1.3% of all deaths. The high incidence of hemorrhage from unknown causes, particularly postpartum bleeding, in part reflects the low frequency of postmortem examinations. However, the autopsy rate did improve from 13.4% in 1946-1950 to 29.3%

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*Chairman, Committee on Maternal Health of the Medical Society of the State of North Carolina.

Table 1

Total Maternal Deaths and Maternal Deaths from Hemorrhage North Carolina 1946-1965				
	1946-50	1951-55	1956-60	1961-65
Total deaths	914	827	556	440
Maternal death rate*	19.1	14.7	9.9	8.3
Death from hemorrhage	239	204	137	92
Hemorrhage death rate*	5.0	3.6	2.4	1.7
Hemorrhage/Total Deaths x 100	26.1	24.7	24.6	20.9
*per 10,000 live births				

in 1961-1965. The frequency of uterine rupture more than doubled over the 20 years. Factors considered responsible for these ruptures are shown in Table 4. The frequency of vaginal operative procedures, mainly version and extraction, has been halved, whereas oxytocic overstimulation of the uterus, nonexistent in 1946-1950, rose to 25.0% in 1961-1965.

Irreversible hemorrhagic shock was the immediate cause of death in 90% of cases. Anuria secondary to renal cortical necrosis or lower nephron nephrosis caused 6.5% of deaths, with the remaining women dying from miscellaneous causes such as pulmonary edema, cerebral ischemia, and pituitary necrosis.

Errors in diagnosis and management were considered responsible for 73.3% of deaths, while the patient and/or her family compromised therapy 23.7% of the time (Fig. 1). Although the availability of blood progressively increased to 76.1% in 1961-1965, markedly inadequate replacement of blood characterized the entire 20 years (Fig. 2). Similarly, the frequency of appropriate operative therapy was also low. Of the deaths occurring before 20 weeks' gestation, it is reasonable to assume that all of the ectopic pregnancies and at least half of the abortions should have received surgical treatment. Operation was performed in only 39% of these patients. Similar estimations for those women dying beyond 20 weeks' gestation show that only 56% received either operative therapy or aggressive medical treatment.

Comment

The data presented here tell a story so

Table 2

Occurrence of Maternal Deaths from Hemorrhage North Carolina 1946-1965			%	%
Less than 20 weeks' gestation			18.1	
Spontaneous abortion				3.9
Criminal abortion				1.3
Ectopic pregnancy				12.9
More than 20 weeks' gestation			81.9	
20-27 weeks				1.8
Over 28 weeks				80.1

Table 3

Causes of Maternal Hemorrhage after Twenty Weeks' Gestation 1946-1950 1951-1955 1956-1960 1961-1965				
	%	%	%	%
Premature placental separation	17.6	25.4	18.5	26.9
Placenta previa	11.6	7.3	5.6	2.5
Retained secundines	5.5	8.5	4.6	5.1
Vaginal & cervical lacerations	3.0	1.8	4.6	2.6
Rupture of uterus	13.6	21.2	16.7	30.8
Uterine atony	14.1	8.5	7.4	6.4
Miscellaneous	4.5	3.7	4.6	3.8
Hypofibrinogenemia	0.0	1.8	1.9	2.6
Post partum, etiology unknown	29.6	21.8	27.8	19.2
Unknown	0.5	0.0	8.3	0.0

Table 4

Factors Responsible for Uterine Rupture 1946-1950 1951-1955 1956-1960 1961-1965				
	%	%	%	%
Spontaneous	37.0	28.6	66.6	41.7
Previous cesarean section	11.1	11.4	5.6	12.6
Operative delivery	44.4	42.8	22.3	20.7
version & extraction		44.4	31.4	16.7
			5.7	12.5
Breech extraction		0.0	5.7	5.6
Forceps		0.0	5.7	0.0
Oxytocin stimulation of labor	0.0	17.2	5.5	25.0
Criminal	7.5	0.0	0.0	0.0

self-evident that further discussion hardly seems necessary. However, the very occurrence of the maternal deaths upon which these statistics are based indicates significant and continuing problems in obstetric understanding, management, and logistics. The infrequency of serious obstetric problems tends to lull the accoucheur into a sense of false security, so that maternal deaths from hemorrhage seem to explode from nowhere. Such is the nature of obstetric hemorrhage—sudden and massive—but it can be anticipated.

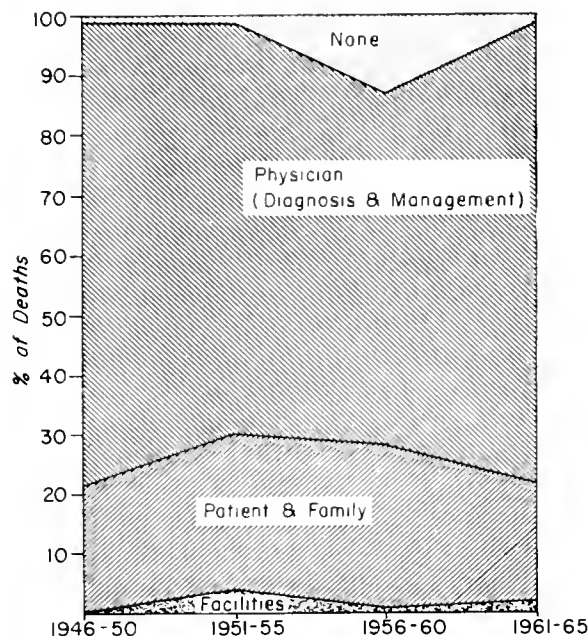


Fig. 1. Errors in diagnosis and management of hemorrhagic complications of pregnancy were primarily responsible for maternal deaths from hemorrhage in North Carolina.

If a hemorrhagic complication is anticipated, prophylactic blood can be cross-matched, the particular complication will be sought, diagnosed early, and promptly treated, often before significant blood loss can occur. Herein lies the major solution of the problem of maternal deaths from hemorrhage in North Carolina, for the data clearly indicate a lack of anticipation, delay in the diagnosis and therapy of the offending condition, and absence of prophylactic cross-matching of blood, despite its availability. The data further indicate grossly inadequate blood replacement.

Anticipated hemorrhagic complications

Since every pregnant woman may experience a bleeding complication at some time during her pregnancy, preparation for this possibility begins with the first prenatal visit. Hemoglobin or hematocrit levels should be determined initially and at least once again at seven months' gestation. This permits detection of patients with hematoipoetic reserves inadequate to maintain normal maternal blood levels and supply the requirements of the developing fetus simultaneously. The cause of maternal anemia should be diagnosed and treated promptly. Daily

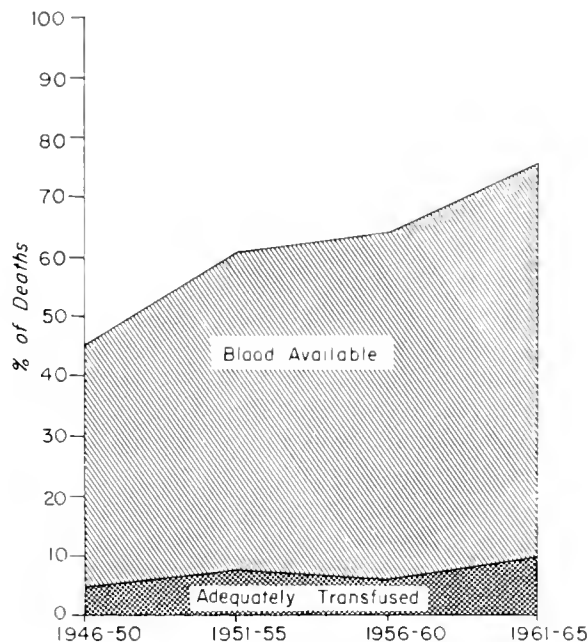


Fig. 2. Although availability of blood progressively increased from 1946 to 1965, the incidence of adequate blood replacement for patients dying of hemorrhagic complications of pregnancy remained inordinately low.

iron supplements are recommended for all patients. These measures should achieve women well prepared to resist the threat of hemorrhage.

The most frequent mechanisms of obstetric bleeding are lacerations of the genital tract, uterine atony, and conditions involving incomplete separation of the placenta (abortion, ectopic pregnancy, premature separation, placenta previa, and retained placental fragments after delivery.) The majority of these conditions can be expected to occur immediately post partum (70% in this series).

Spontaneous rupture of the uterus and lacerations of the lower genital tract occur frequently during tumultuous, rapid labor, during obstructed labor, and following previous cesarean section. However, the majority of lacerations complicate operative or oxytocin-induced accouchement force. Driving the fetus from above may be just as traumatic as extracting it from below. As the use of oxytocin for stimulation of labor increases, one must recognize that uterine overstimulation is far more subtle and insidious than the overt act of operative delivery. Oxytocin should always be adminis-

tered intravenously under the direct continuous observation of the physician, and as spontaneous uterine activity increases, exogenous stimulation should be reduced. After any type of operative delivery, lacerations of the vagina, cervix, and uterus should be excluded immediately.

An overdistended uterus or one that contracts poorly during labor should be expected to contract poorly following delivery. Similar uterine atony frequently follows a tumultuous labor. Whenever the above circumstances are present or when a uterus fails to contract well for no apparent reason, the fundus must be continually observed for at least four hours. A slow intravenous oxytocin infusion for six hours is an excellent prophylactic measure.

Conditions involving partial or incomplete separation of the placenta frequently require prompt surgical intervention or active medical management. Space does not permit a discussion of each,* but it is noteworthy that with the exception of placenta previa, no significant decrease in the relative frequency of these conditions occurred during the 20-year period (Table 2). It is axiomatic that prompt removal of the offending placental tissue is necessary to control active bleeding.

The following plan of management is recommended for all parturients to facilitate early diagnosis and therapy of the causes of postpartum hemorrhage. Immediately after delivery of the placenta the cervix is relaxed, permitting easy entry of an examining hand into the uterine cavity. The uterus should be explored manually at this time for retained placental fragments and lacerations. Thereafter, the uterine fundus should be held out of the pelvis with an abdominal hand. Depression of the perineum with the remaining hand then permits visualization of the entire cervix and vaginal walls for abnormalities. These examinations can be rapidly and easily performed by one individual, even with the patient under pudendal block anesthesia, and are appro-

priately done before repair of an episiotomy. After the episiotomy has been repaired, the vaginal portion of the incision should be visualized to confirm hemostasis. This method permits early diagnosis or exclusion of all the common causes of postpartum hemorrhage except uterine atony. Subsequent bleeding may be confidently attributed to this cause. It should be noted that abnormalities of blood coagulability are rare causes of obstetric hemorrhage. The presence of such abnormalities, particularly low fibrinogen levels, should not distract the physician from excluding the common causes of hemorrhage.

Adequate blood replacement

The specific replacement for whole blood loss is whole blood. Lesser fluids lack oxygen-carrying capacity, only temporarily improve circulating blood volume, and may contribute to circulatory overload when renal function is compromised.

Blood replacement must be prompt and adequate to prevent irreversible shock. This depends upon a proper assessment of blood loss, a ready route for administration of blood, and availability of blood. Lack of all of these factors contributed to the low frequency of adequate replacement observed in the present series. The most useful and rapid assessment of blood loss is based upon a woman's estimated blood volume and her physiologic responses to hemorrhage.³ The method is not dependent upon unreliable patient or physician estimates of external bleeding nor upon laboratory studies which belie the actual extent of acute bleeding. Including the gestational increase, the blood volume of an average patient in the third trimester of pregnancy is about 8% of her body weight; for example, 5600 ml in a 70 kg (154 lb) woman. Loss of 10% to 15% of the blood volume (560-840 ml in the above woman) produces few physiologic changes. A 20% to 30% loss (1120-1680 ml) causes sweating, pallor, apprehension, tachycardia, a moderate drop in systolic blood pressure, and postural syncope. Loss of 30% to 50% of the blood volume (1680-2800 ml) produces marked pallor, a rapid thready pulse, systolic blood pressure below 70 mm, markedly reduced urinary output, and disorien-

*Carter(2) has recently discussed six of these deaths from bilateral renal cortical necrosis complicating premature separation of the placenta.

tation and restlessness often requiring restraints. It should be noted that a 1000 ml blood loss in a 50 kg woman (about 25% of her blood volume) will cause significantly different physiologic changes than similar loss in a 100 kg. woman.

Appreciation of the physical and mental changes which accompany blood loss emphasizes the importance of insertion and firm fixation of a large-bore percutaneous intravenous catheter whenever obstetric bleeding is anticipated. This provides a reliable rapid route for blood replacement, if necessary. Insertion of the catheter into the vena cava also permits evaluation of central venous pressure, an increasingly important therapeutic guide whenever rapid changes in blood volume, cardiac and renal function are occurring. Should a patient present with marked peripheral vasoconstriction and disorientation after severe hemorrhage, unnecessary delay can be avoided by the immediate insertion of a catheter by the cutdown technique.

Assuming proper assessment of blood loss and a ready route of administration, one must still depend upon the physical presence of adequate amounts of whole blood. Availability of blood is a relative term depending upon the acuteness of the need. In fact, blood is not available for the massively hemorrhaging patient when hours may be required before it can be sent from a regional center. Furthermore, the emphasis in obstetrics must be upon the *prophylactic availability* of blood and not upon its availability for a patient *in extremis*. In the latter case, the need is evident. On the contrary, delivery of blood by a relay of state patrolmen in high speed

vehicles for every patient who *may* need blood and the subsequent return of the blood when replacement was not necessary is a far different matter—one that does not seem feasible at present. Necessary alternatives include the constant availability of at least two units of low-titer O-Rh-negative blood in any hospital or clinic admitting obstetric patients. Such blood is maintained for the unexpected emergency bleeder. If an additional supply of group and type specific blood is not available, patients with complications threatening severe hemorrhage should be transferred to a hospital with adequate blood bank facilities. Obstetric hemorrhage is often sudden and massive—a blood bank capable of similar replacement should be immediately available.

Summary

Six hundred and seventy-two maternal deaths from hemorrhage in North Carolina from 1946 to 1965 are analyzed. They comprised one-fourth of all maternal deaths during this time. The data show that 20% occurred in the first trimester of pregnancy, 10% ante partum, and 70% post partum. Seventy-three per cent were attributed to delay in the prompt diagnosis and specific therapy of these conditions and to inadequate replacement of blood loss. Measures designed to eliminate these almost completely preventable deaths are discussed.

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1. Anderson, S. G., Greiss, F. C., Jr., and May, W. J.: Maternal Mortality in North Carolina, 1946-1965, *N Carolina Med J* 29:367-370 (Sept) 1968.
2. Carter, B.: Premature Separation of the Normally Implanted Placenta, *Obstet Gynec* 29:30-33, (Jan) 1967.
3. Moore, F.D.: *Metabolic Care of the Surgical Patient*, Philadelphia, W. B. Saunders Co., 1959, pp 172-214.

An ardent fever may be occasioned by any thing that overheats the body or produces plethora, as violent exercise, sleeping in the sun, drinking strong liquors, eating spiceries, a full diet, with little exercise, etc. It may likewise be occasioned by whatever obstructs the perspiration, as lying on the damp ground, drinking cold liquor when the body is hot, night watching, or the like.—William Buchan: *Domestic Medicine, or a Treatise on the Prevention and Cure of Diseases by Regimen and Simple Medicines, etc.*, Philadelphia, Richard Folwell, 1799, p. 118-119.

Perinatal Mortality in North Carolina

A Report for the Committee on Maternal Health Medical Society of the State of North Carolina

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In the belief that the local physician will be interested in an objective measurement of medical achievement in his community, the NORTH CAROLINA MEDICAL JOURNAL, commencing with this issue, begins a program of monthly publication of perinatal mortality rates within the State by race and by county and for cities of ten thousand population or more.

The project was initiated by the North Carolina Obstetrical and Gynecological Society and the Maternal Health Committee of the State Medical Society. It has the official sanction of the Executive Committee of the latter organization, the support of the directors of the Departments of Obstetrics and Gynecology of each of the three medical schools and the assistance of the State Board of Health, which will compute and tabulate the statistics from the live birth, stillbirth and death certificates that are received during the third preceding month.

That something over and above physician interest might be gained through this program is suggested by the reduction in maternal mortality which was brought about years ago. The dramatic phase of that reduction seemed to begin about the time that the NORTH CAROLINA MEDICAL JOURNAL began monthly reporting of maternal deaths by geographical location of occurrence in 1953.

It is hoped, therefore, that by calling attention to the marked span of perinatal mortality rates, both white and nonwhite, among the counties of the state, local physicians, particularly those in high rate counties, may be stimulated to identify and try to correct conditions which might be contributing to perinatal loss. Successive reports will then supply them with a continuing measure of their success.

The purpose of this article is to demon-

strate the existence of potentially improvable situations within the state in regard to perinatal survival, and to suggest how this program can be of assistance.

Two sets of figures quite obviously imply that particular attention to efforts at reduction of perinatal loss rates might, in some counties, be rewarding.

Description of the Tables

The first table shows the average county perinatal loss rates for the last five years: that is, from January 1, 1963 through December 31, 1967.

The counties are arranged separately for whites and nonwhites, in the ascending order of their perinatal loss rates without regard to the number of deliveries.

In Table 2 the counties are grouped according to more nearly comparable total numbers of deliveries. Within the groups,

For editorial comment see page 28
"Quality Control"

the order is the same as that used in Table I. The individual yearly perinatal loss rates for each county during the years 1963 through 1967 are shown in the columns to the right.

Table I documents the generally marked difference in perinatal losses between white and nonwhite patients—a difference, of course, which is found in the nation as a whole as well as in every state and most localities. Obviously, to be meaningful, the white and nonwhite experiences must be tabulated separately: i.e., race specifically.

The table also demonstrates a surprisingly wide span between the low county rates and the high county rates for each race. In fact, for both races, a number of the highest perinatal mortality rates are more than double the lowest rates. Such differences between race specific rates are certainly suggestive, particularly for counties with larger numbers of total births, such, for example,

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TABLE I
PERINATAL MORTALITY RATES IN NORTH CAROLINA
FETAL DEATH (STILLBIRTH) FROM 20 WEEKS OF GESTATION +
NEONATAL DEATHS WITHIN 28 DAYS OF LIFE
PERINATAL MORTALITY RATES = $\frac{\text{TOTAL DEATHS (FETAL + NEONATAL)}}{\text{TOTAL BIRTHS (LIVE BIRTHS + STILLBIRTHS FROM 20 WEEKS)}}$
FIVE YEAR AVERAGES 1963, 1964, 1965, 1966, 1967
BY COUNTY OF RESIDENCE IN ASCENDING ORDER

COUNTY	Deaths/Deliveries White	Rate		COUNTY	Deaths/Deliveries Nonwhite	Rate	
ENTIRE STATE	(10,146/345,001)	29.4	(±2 S.E.)	ENTIRE STATE	(8373/160,280)	52.2	(±2 S.E.)
Jones	(5/391)	12.8	-	Ashe	(0/26)	0	-
Perquimans	(6/365)	16.4	13.3	Alleghany	(0/23)	0	-
Martin	(22/1153)	19.1	8.1	Clay	(0/2)	0	-
Beaufort	(38/1958)	19.4	6.2	Graham	(0/57)	0	-
Currituck	(7/343)	20.4	15.3	Transylvania	(1/136)	7.4	-
Cherokee	(28/1348)	20.8	7.8	Haywood	(2/70)	28.6	-
Pasquotank	(31/1467)	21.1	7.5	Dare	(2/63)	31.7	-
Northampton	(13/608)	21.4	11.7	Wilkes	(10/314)	31.8	19.8
Yancey	(27/1242)	21.7	8.3	Onslow	(76/2277)	33.4	7.5
Anson	(21/961)	21.9	9.4	Randolph	(27/781)	34.6	13.1
Burke	(114/4864)	23.4	4.3	Cleveland	(86/2466)	34.9	7.4
Transylvania	(43/1776)	24.2	7.3	Burke	(17/466)	36.5	17.4
Gates	(6/247)	24.3	19.6	Chatham	(38/1021)	37.2	11.9
Rowan	(144/5779)	24.9	4.1	Currituck	(9/232)	38.8	25.4
Lee	(57/2261)	25.2	6.6	Lee	(37/946)	39.1	12.6
Macon	(29/1151)	25.2	9.2	Rockingham	(87/2203)	39.5	8.3
Pender	(18/715)	25.2	11.7	Duplin	(73/1834)	39.8	6.8
Bertie	(17/664)	25.6	12.3	Washington	(36/903)	39.9	13.0
Duplin	(56/2165)	25.9	6.8	Polk	(7/170)	41.2	30.5
Washington	(18/696)	25.9	12.0	Gaston	(102/2464)	41.4	8.0
Mecklenburg	(578/22256)	26.0	2.1	Rowan	(65/1569)	41.4	10.1
Forsyth	(367/14052)	26.1	2.7	Buncombe	(70/1639)	42.7	10.0
Orange	(94/3595)	26.1	5.3	Pasquotank	(54/1243)	43.4	11.6
Wilson	(78/2990)	26.1	5.8	Brunswick	(43/975)	44.1	13.2
Hyde	(5/189)	26.5	-	Cherokee	(2/45)	44.4	-
Tyrrell	(4/151)	26.5	-	Orange	(58/1334)	43.5	11.2
Lenoir	(82/3088)	26.6	5.8	McDowell	(7/157)	44.6	33.0
Wayne	(170/6352)	26.8	4.1	Rutherford	(38/846)	44.9	14.2
Iredell	(142/5224)	27.2	4.5	Jones	(28/614)	45.6	16.8
Alamance	(183/6711)	27.3	4.0	Catawba	(54/1161)	46.5	12.4
Gaston	(331/12105)	27.3	3.0	Cumberland	(354/7450)	47.5	4.9
Wake	(374/13691)	27.3	2.8	Alamance	(113/2361)	47.9	8.8
Pitt	(100/3625)	27.6	5.4	Mecklenburg	(501/10371)	48.3	4.2
New Hanover	(139/5011)	27.7	4.6	Cabarrus	(75/1546)	48.5	10.9
Randolph	(163/5888)	27.7	4.3	Pitt	(181/3730)	48.5	7.0
Craven	(163/5852)	27.9	4.3	Robeson	(377/7768)	48.5	4.9
Cleveland	(146/5220)	28.0	4.6	Martin	(82/1667)	49.2	10.6
Wilkes	(123/4376)	28.1	5.0	Pender	(51/1033)	49.4	13.5
Jackson	(37/1312)	28.2	9.1	Bertie	(86/1723)	49.9	10.5
Sampson	(70/2473)	28.3	6.7	Jackson	(14/279)	50.2	26.1
Guilford	(545/19117)	28.5	3.5	Pamlico	(19/376)	50.5	22.6
Davidson	(217/7577)	28.6	3.8	Scotland	(71/1400)	50.7	11.7
Haywood	(113/3948)	28.6	5.3	Granville	(100/1967)	50.8	9.9
Graham	(18/628)	28.7	13.3	Sampson	(110/2159)	50.9	9.5
Bladen	(40/1386)	28.9	9.0	Perquimans	(21/410)	51.2	21.8
Halifax	(63/2171)	29.0	7.2	Durham	(244/4756)	51.3	6.4
Franklin	(31/1066)	29.1	10.3	Lincoln	(26/504)	51.6	19.7
Vance	(47/1610)	29.2	8.4	Craven	(119/2302)	51.7	9.2
Person	(44/1504)	29.3	8.7	Hertford	(89/1717)	51.8	10.7
Warren	(12/409)	29.3	6.7	Stanly	(32/618)	51.8	17.8

TABLE I (continued)

COUNTY	Deaths/Deliveries White	Rate	(+2 S.E.)	COUNTY	Deaths/Deliveries Nonwhite	Rate	(+2 S.E.)
Chowan	(14/474)	29.5	15.5	Wake	(330/6344)	52.0	5.6
Cumberland	(566/19127)	29.6	3.6	Caswell	(57/1093)	52.2	13.5
Durham	(212/7172)	29.6	4.0	Richmond	(88/1674)	52.3	10.9
Nash	(81/2724)	29.7	6.5	Swain	(19/363)	52.3	23.4
Alexander	(44/1468)	30.0	8.9	Caldwell	(29/551)	52.6	19.0
Onslow	(370/12344)	30.0	3.1	Beaufort	(81/1534)	52.8	11.4
Yadkin	(61/2030)	30.0	7.6	Camden	(13/246)	52.8	28.5
Avery	(36/1188)	30.3	10.0	Iredell	(94/1781)	52.8	10.6
Stokes	(59/1932)	30.5	7.2	Bladen	(74/1390)	53.2	12.0
Catawba	(227/7395)	30.7	4.0	Gates	(31/575)	53.9	18.8
Richmond	(81/2635)	30.7	6.7	Wayne	(189/3509)	53.9	7.6
Greene	(17/556)	30.6	14.6	Montgomery	(37/685)	54.0	17.3
Rockingham	(162/5172)	31.3	4.8	Halifax	(249/4496)	55.4	6.8
Dare	(18/570)	31.6	14.7	New Hanover	(131/2364)	55.4	9.4
Swain	(21/664)	31.6	13.6	Edgecombe	(214/3825)	55.9	7.4
Henderson	(110/3474)	31.7	5.9	Hoke	(67/1191)	56.3	13.4
McDowell	(82/2582)	31.8	6.9	Columbus	(132/2327)	56.7	9.6
Robeson	(109/3414)	31.9	6.0	Davidson	(78/1373)	56.8	12.5
Johnston	(123/3827)	32.1	5.7	Surry	(21/369)	56.9	24.1
Hoke	(19/581)	32.7	14.8	Henderson	(14/243)	57.6	29.9
Chatham	(49/1495)	32.8	9.2	Guilford	(458/7940)	57.7	5.2
Carteret	(79/2401)	32.9	7.3	Davie	(16/276)	58.0	28.1
Buncombe	(384/11570)	33.2	3.3	Moore	(83/1426)	58.2	12.4
Surry	(158/4728)	33.4	5.2	Vance	(122/2067)	59.0	10.4
Ashe	(61/1821)	33.5	8.4	Wilson	(193/3270)	59.0	8.2
Stanly	(104/3091)	33.6	6.5	Franklin	(98/1652)	59.3	11.6
Moore	(90/2674)	33.7	7.0	Alexander	(10/168)	59.5	36.5
Harnett	(108/3175)	34.0	6.4	Lenoir	(162/2709)	59.8	9.1
Watauga	(58/1708)	34.0	8.8	Johnston	(112/1841)	60.8	11.1
Cabarrus	(179/5227)	34.2	5.0	Nash	(203/3293)	61.6	8.4
Madison	(46/1338)	34.4	10.0	Greene	(66/1061)	62.2	14.8
Rutherford	(130/3686)	35.3	6.0	Yadkin	(12/193)	62.2	34.8
Granville	(46/1300)	35.4	10.3	Harnett	(128/2055)	62.3	10.7
Brunswick	(47/1323)	35.5	10.2	Northampton	(134/2130)	62.9	10.5
Columbus	(110/3082)	35.7	6.7	Anson	(102/1587)	64.3	12.3
Scotland	(55/1509)	36.4	9.6	Carteret	(35/542)	64.6	21.1
Edgecombe	(83/2255)	36.8	7.9	Union	(111/1719)	64.6	11.9
Caldwell	(214/5755)	37.2	5.0	Tyrrell	(13/201)	64.7	34.7
Camden	(10/264)	37.9	23.5	Forsyth	(402/6178)	65.1	6.3
Lincoln	(96/2526)	38.0	7.6	Person	(86/1280)	67.2	14.0
Mitchell	(44/1156)	38.1	11.3	Stokes	(19/281)	67.6	30.0
Pamlico	(15/390)	38.5	19.5	Warren	(88/1300)	67.7	13.9
Hertford	(26/670)	38.8	14.9	Chowan	(46/640)	71.9	20.4
Montgomery	(47/1205)	39.0	11.2	Macon	(2/25)	80.0	-
Union	(145/3702)	39.2	10.8	Hyde	(24/294)	81.6	31.9
Alleghany	(27/675)	40.0	15.1	Madison	(1/11)	90.9	-
Clay	(15/373)	40.2	20.3	Watauga	(2/20)	100.0	-
Davie	(56/1394)	40.2	10.5	Yancey	(2/15)	133.3	-
Polk	(37/798)	46.4	14.9	Avery	(1/5)	200.0	-
Caswell	(36/750)	48.0	15.6	Mitchell	(1/4)	250.0	-

as one thousand or more for the five-year period.

The immediate question rises, however, as to the real significance of variations in such race specific rates.

Those variations might reflect differences in the white or nonwhite populations from county to county, differences in the available medical facilities, or differences in the performance of the personnel involved in maternity care, including in some instances that of midwives.

In theory, any of the above or related causes of increased perinatal mortality are correctible.

It has to be admitted that population characteristics will be changed only over a long period of time—with improved economics and elevated standards of living, with education and the development of social sophistication. Until then, there will be the questions about the extent to which the genetic background of any segment of society may be an unavoidable cause of perinatal loss, or its living conditions or its ignorance and irresponsibility.

While the problems which the paragraph above suggests are not primarily medical in nature, their existence among the less affluent elements of the population should be recognized by the community as potentially alterable contributors to perinatal loss. And to the extent that more individually detailed and constant care for indigent women might prevent some of this perinatal loss, these problems of population characteristics do have implications for the medical profession.

Differences in medical facilities are more direct concerns of the profession, although their improvement often requires assistance from the community.

Finally, it must be admitted within the profession that it might be possible for an association to exist between medical practices or personnel and local perinatal loss rates.

It is tempting, then, to conclude off hand that, if some counties can achieve low race specific perinatal mortality rates over a five-year period, other counties ought to be able to at least approach those low rates.

Such a conclusion is unwarranted without further analysis.

That occasional perinatal deaths might go unreported has to be considered. It hardly seems possible that such omissions could explain away a significant part of the differences in perinatal mortality rates. That there is a degree of underreporting of neonatal mortality was, however, documented in North Carolina in 1961,¹ with much of it occurring in hospitals themselves. A subsequent survey last summer indicates that neonatal deaths of babies born alive but weighing less than 2500 gm still occasionally do not get recorded. The possibility of underreporting of deaths must, therefore, still be entertained as one potential explanation of the lower rates, although it seems difficult to believe that it might be a major factor.

By far the most important factor to confuse the significance of these rates is chance alone.

Five-year rates may cover periods of change in hospital or clinic facilities, for instance, in the population itself or in medical personnel. They do, however, considerably reduce the chance that the perinatal loss rates had been seriously affected by "bad years" and "good years." The possibility of five "bad years" or five "good years" in a row owing to the happenstance occurrence of significantly more or fewer high risk cases is obviously less than the possibility of fluctuation due to chance in *annual* rates.

The potential effect of chance alone, even on five-year rates, is considerable just the same. It has to be taken into account in the interpretation of any comparison between single counties or between a county and the state average.

Effect of Chance

The lower the rate or the larger the series, the less would be variability due to chance alone and the more validly can comparison be made. For that reason the actual numbers of perinatal deaths and of total deliveries are shown in parentheses to the left of the rates derived from them.

Twice the calculated Standard Error is also shown following each rate in Table I.

TABLE II
 NONWHITE PERINATAL MORTALITY RATES IN NORTH CAROLINA
 Perinatal Mortality = Fetal Death (Stillbirth) From 20 Weeks of Gestation:
 Neonatal Death Within 28 Days of Life
 FIVE YEAR AND ANNUAL RATES: 1963, 1964, 1965, 1966, 1967
 BY COUNTY OF RESIDENCE: GROUPED BY NUMBER OF DELIVERIES
 IN ASCENDING ORDER OF FIVE YEAR RATES

TOTAL DELIVERIES 0 to 100

COUNTY	FIVE YEAR RATE	1963	1964	1965	1966	1967
ASHE	(0/26) 0	(0/4) 0	(0/7) 0	(0/6) 0	(0/3) 0	(0/6) 0
ALLEGHANY	(0/23) 0	(0/3) 0	(0/3) 0	(0/5) 0	(0/3) 0	(0/9) 0
CLAY	(0/2) 0	(0/0) 0	(0/0) 0	(0/2) 0	(0/0) 0	(0/0) 0
GRAHAM	(0/57) 0	(0/13) 0	(0/14) 0	(0/13) 0	(0/6) 0	(0/11) 0
HAYWOOD	(2/70) 28.6	(0/15) 0	(0/9) 0	(1/15) 66.7	(1/16) 62.5	(0/15) 0
DARE	(2/63) 31.7	(1/18) 55.6	(0/15) 0	(0/11) 0	(1/9) 111.1	(0/10) 0
CHEROKEE	(2/45) 44.4	(0/8) 0	(1/9) 111.1	(0/11) 0	(1/9) 111.1	(0/8) 0
MACON	(2/25) 80.0	(0/3) 0	(1/9) 111.1	(0/2) 0	(0/4) 0	(1/7) 142.9
MADISON	(1/11) 90.9	(0/2) 0	(0/1) 0	(0/4) 0	(0/1) 0	(1/3) 333.3
WATAUGA	(2/20) 100.0	(1/2) 500.0	(0/4) 0	(0/1) 0	(0/4) 0	(1/9) 111.1
YANCEY	(2/15) 133.3	(0/5) 0	(0/2) 0	(1/2) 500.0	(1/2) 500.0	(0/4) 0
AVERY	(1/5) 200.0	(0/1) 0	(1/2) 500.0	(0/0) 0	(0/1) 0	(0/1) 0
MITCHELL	(1/4) 250.0	(1/1) 1000.0	(0/2) 0	(0/0) 0	(0/0) 0	(0/1) 0

TOTAL DELIVERIES 101-1000

TRANSYLVANIA	(1/136) 7.4	(0/23) 0	(0/22) 0	(1/33) 30.3	(0/32) 0	(0/16) 0
WILKES	(10/314) 31.8	(2/72) 27.8	(1/74) 13.5	(1/66) 15.2	(4/56) 71.4	(2/46) 43.5
RANDOLPH	(27/781) 34.6	(7/140) 50.0	(5/160) 31.3	(3/158) 19.0	(5/164) 30.5	(7/159) 44.0
BURKE	(17/466) 36.5	(2/106) 18.9	(1/88) 11.4	(6/104) 57.7	(4/95) 42.1	(4/73) 54.8
CURRITUCK	(9/232) 38.8	(4/43) 93.0	(2/63) 31.7	(2/31) 64.5	(1/48) 20.6	(0/47) 0
LEE	(37/946) 39.1	(5/218) 22.9	(13/188) 69.1	(7/186) 37.6	(3/159) 18.9	(9/195) 46.2
WASHINGTON	(36/903) 39.9	(14/188) 74.5	(5/181) 27.6	(6/182) 33.0	(2/157) 12.7	(9/195) 46.2
POLK	(7/170) 41.2	(1/33) 30.3	(2/37) 54.1	(1/40) 25.0	(1/30) 33.3	(2/30) 66.7
BRUNSWICK	(43/975) 44.1	(5/194) 25.8	(9/206) 43.7	(8/211) 37.9	(10/177) 56.5	(11/187) 58.8
MCDOWELL	(7/157) 44.6	(2/24) 83.3	(1/35) 28.6	(2/38) 52.6	(1/32) 31.3	(1/28) 35.7
RUTHERFORD	(38/846) 44.9	(9/175) 51.4	(10/160) 62.5	(6/155) 38.7	(9/169) 53.3	(4/187) 21.4
JONES	(28/614) 45.6	(7/157) 44.6	(2/144) 13.9	(9/119) 75.6	(4/104) 38.5	(6/90) 66.7
CABARRUS	(75/1546) 48.5	(16/329) 48.6	(16/310) 51.6	(16/323) 49.5	(12/290) 41.4	(15/294) 51.0
JACKSON	(14/279) 50.2	(2/66) 30.3	(3/78) 38.5	(4/59) 67.8	(1/38) 26.3	(4/38) 105.3
PAMLICO	(19/376) 50.5	(2/91) 22.0	(6/93) 64.5	(5/78) 64.1	(4/55) 72.7	(2/59) 33.9
PERQUIMANS	(21/410) 51.2	(2/100) 20.0	(7/99) 70.7	(3/81) 37.0	(4/70) 57.1	(5/60) 83.3
LINCOLN	(26/504) 51.6	(10/100) 100.0	(4/106) 37.7	(4/96) 41.7	(5/91) 54.9	(3/111) 27.0
STANLY	(32/618) 51.8	(5/119) 42.0	(6/135) 44.4	(9/106) 84.9	(7/133) 52.6	(5/125) 40.0
ENTIRE STATE	(8373) 52.2	(1838) 52.9	(1894) 54.7	(1672) 51.9	(1492) 50.7	(1477) 50.6
	(160282)	(34809)	(34614)	(32224)	(29441)	(29192)
SWAIN	(19/363) 52.3	(3/90) 33.3	(5/76) 65.8	(3/67) 44.8	(6/72) 83.3	(2/58) 34.5
CALDWELL	(29/551) 52.6	(6/100) 60.0	(6/106) 56.6	(7/118) 59.3	(5/118) 42.4	(5/109) 45.9
CAMDEN	(13/246) 52.8	(4/67) 59.7	(4/65) 61.5	(3/48) 62.5	(2/31) 64.5	(0/35) 0
GATES	(31/575) 53.9	(5/148) 33.8	(7/112) 62.5	(7/119) 58.8	(5/101) 49.5	(7/95) 73.7
MONTGOMERY	(37/685) 54.0	(7/156) 44.0	(12/177) 67.8	(7/138) 50.7	(6/110) 54.5	(5/104) 48.1
SURRY	(21/369) 56.9	(4/86) 46.5	(1/79) 12.7	(6/75) 80.0	(8/70) 114.3	(2/59) 33.9
HENDERSON	(14/243) 57.6	(1/53) 18.9	(3/53) 56.6	(5/51) 98.0	(3/45) 66.7	(2/41) 48.8
DAVIE	(16/276) 58.0	(2/46) 43.5	(1/69) 14.5	(2/53) 37.7	(6/53) 113.2	(5/55) 90.9
ALEXANDER	(10/168) 59.5	(1/36) 27.8	(3/33) 90.9	(2/30) 66.7	(1/30) 33.3	(3/39) 76.9
YADKIN	(12/193) 62.2	(2/44) 45.5	(2/40) 50.0	(1/31) 32.3	(1/39) 25.6	(6/39) 153.8
CARTERET	(35/542) 64.6	(7/119) 58.8	(8/123) 65.0	(7/91) 76.9	(6/120) 50.0	(7/89) 78.7
TYRRELL	(13/201) 64.7	(8/76) 105.3	(4/53) 75.5	(0/29) 0	(1/16) 62.5	(0/27) 0
STOKES	(19/281) 67.6	(5/51) 98.0	(6/70) 85.7	(2/46) 43.5	(3/55) 54.5	(3/59) 50.8
CHOWAN	(46/640) 71.9	(10/150) 66.7	(17/154) 110.4	(6/134) 44.8	(6/109) 55.0	(7/93) 75.3
HYDE	(24/294) 81.6	(6/67) 89.6	(5/57) 87.7	(5/61) 82.0	(2/52) 38.5	(6/57) 105.3

TOTAL DELIVERIES 1001-2000

CHATHAM	(38/1021) 37.2	(14/221) 63.3	(6/206) 29.1	(5/203) 24.6	(4/188) 21.3	(9/203) 44.3
DUPLIN	(73/1834) 39.8	(17/408) 41.7	(15/407) 36.9	(20/364) 54.9	(13/328) 39.6	(8/327) 24.5
ROWAN	(65/1569) 41.4	(16/318) 50.3	(18/343) 52.5	(5/316) 19.0	(13/271) 48.0	(12/321) 37.4
BUNCOMBE	(70/1639) 42.7	(14/332) 42.2	(11/323) 34.1	(14/351) 39.9	(16/314) 51.0	(15/319) 47.0
PASQUOTANK	(54/1243) 43.4	(9/272) 33.1	(19/288) 62.5	(11/243) 45.3	(7/222) 31.5	(9/218) 41.3

T A B L E II Continued

TOTAL DELIVERIES 2001-5000

COUNTY	FIVE YEAR RATE	1963	1964	1965	1966	1967
BURKE	(114/4864) 23.4	(19/971) 19.6	(28/1014) 27.6	(23/917) 25.1	(23/980) 23.5	(21/982) 21.4
ROWAN	(144/5779) 24.9	(24/1203) 20.0	(35/1181) 29.6	(23/1110) 20.7	(33/1163) 28.4	(29/1122) 25.8
LEE	(57/2261) 25.2	(13/479) 27.1	(13/488) 26.6	(13/422) 30.8	(9/449) 20.0	(9/423) 21.3
DUPLIN	(56/2165) 25.9	(13/505) 25.7	(20/464) 43.1	(5/426) 11.7	(9/400) 22.5	(9/370) 24.3
ORANGE	(94/3595) 26.1	(23/756) 30.4	(22/738) 29.8	(14/668) 21.0	(14/678) 20.6	(21/755) 27.8
WILSON	(78/2990) 26.1	(21/695) 30.2	(16/649) 24.7	(19/583) 32.6	(9/603) 14.9	(13/460) 28.3
LENOIR	(82/3088) 26.6	(16/677) 23.6	(21/661) 31.8	(13/577) 22.5	(14/578) 24.2	(18/595) 30.3
PITT	(100/3625) 27.6	(25/772) 32.4	(11/791) 13.9	(23/677) 34.0	(26/684) 38.0	(15/701) 21.4
WILKES	(123/4376) 28.1	(22/913) 24.1	(26/958) 27.1	(27/843) 32.0	(25/858) 29.1	(23/804) 28.6
SAMPSON	(70/2473) 28.3	(20/546) 36.6	(15/522) 28.7	(15/488) 30.7	(9/476) 18.9	(11/441) 24.9
HAYWOOD	(113/3948) 28.6	(25/803) 31.1	(17/840) 20.2	(18/819) 22.0	(29/771) 37.6	(24/715) 33.6
HALIFAX	(63/2171) 29.0	(13/464) 28.0	(17/496) 34.3	(9/435) 20.7	(8/373) 21.4	(16/403) 39.7
ENTIRE STATE	(10196) (345001) 29.4	(2224) (74441) 29.9	(2152) (73384) 29.3	(1991) (67145) 29.7	(1938) (64990) 29.8	(1841) (65041) 28.3
NASH	(81/2724) 29.7	(18/582) 30.9	(18/607) 29.7	(20/505) 39.6	(15/501) 29.9	(10/529) 18.9
YADKIN	(61/2030) 30.0	(16/417) 38.4	(11/459) 24.0	(11/397) 27.7	(11/379) 29.0	(12/378) 31.7
RICHMOND	(81/2635) 30.7	(13/580) 22.4	(22/578) 38.1	(16/502) 31.9	(15/542) 27.7	(15/433) 34.6
HENDERSON	(110/3474) 31.7	(24/691) 34.6	(27/758) 35.6	(24/686) 35.0	(17/672) 25.3	(18/667) 27.0
MCDOWELL	(82/2582) 31.8	(13/503) 25.8	(19/539) 35.3	(14/519) 27.0	(22/519) 42.4	(14/502) 27.9
ROBESON	(109/3414) 31.9	(23/765) 30.1	(22/766) 28.7	(18/641) 28.1	(26/599) 43.4	(20/643) 31.1
JOHNSTON	(123/3827) 32.1	(25/870) 28.7	(22/817) 26.9	(21/713) 29.5	(29/669) 43.3	(26/758) 34.3
CARTERET	(79/2401) 32.9	(24/545) 44.0	(14/508) 27.6	(17/472) 36.0	(15/439) 34.2	(9/437) 20.6
STANLY	(104/3091) 33.6	(19/688) 27.6	(14/659) 21.2	(20/574) 34.8	(26/598) 43.5	(25/572) 43.7
MOORE	(90/2674) 33.7	(19/578) 32.9	(19/565) 33.6	(13/522) 24.9	(16/500) 32.0	(23/509) 45.2
HARNETT	(108/3175) 34.0	(28/712) 39.3	(22/699) 31.5	(20/649) 30.8	(19/567) 33.5	(19/548) 34.7
RUTHERFORD	(130/3686) 35.3	(35/759) 46.1	(24/768) 31.3	(24/738) 32.5	(25/696) 35.9	(22/725) 30.3
COLUMBUS	(110/3082) 35.7	(28/696) 40.2	(26/674) 38.6	(18/622) 28.9	(24/546) 44.0	(14/544) 25.7
EDGEcombe	(83/2255) 36.8	(26/540) 48.1	(20/451) 44.3	(11/466) 23.6	(8/410) 19.5	(18/388) 46.4
LINCOLN	(96/2526) 38.0	(25/551) 45.4	(12/512) 23.4	(24/487) 49.3	(14/496) 28.2	(21/480) 43.8
UNION	(145/3702) 39.2	(38/796) 47.7	(34/753) 45.2	(24/696) 34.5	(28/751) 37.3	(21/706) 29.7

TOTAL DELIVERIES 5000-25000

MECKLENBURG	(578/22256) 26.0	(140/4844) 28.9	(124/4608) 26.9	(106/4308) 24.6	(119/4312) 27.6	(89/4184) 21.3
FORSYTH	(367/14052) 26.1	(86/3177) 27.1	(84/3119) 26.9	(66/2708) 24.4	(69/2522) 27.4	(62/2526) 24.5
WAYNE	(170/6352) 26.8	(48/1507) 31.9	(39/1486) 26.2	(31/1199) 25.9	(31/1093) 28.4	(21/1067) 19.7
IREDELL	(142/5224) 27.2	(34/1071) 31.7	(24/1198) 20.0	(34/1017) 33.4	(23/985) 23.4	(27/953) 28.3
ALAMANCE	(183/6711) 27.3	(33/1414) 23.3	(40/1362) 29.4	(35/1342) 26.1	(38/1351) 28.1	(37/1242) 29.8
GASTON	(331/12105) 27.3	(72/2426) 29.7	(81/2409) 33.6	(65/2361) 27.5	(54/2500) 21.6	(59/2409) 24.5
WAKE	(374/13691) 27.3	(59/2763) 21.4	(70/2908) 24.1	(72/2584) 27.9	(95/2664) 35.7	(78/2772) 28.1
NEW HANOVER	(139/5011) 27.7	(38/1078) 35.3	(31/1090) 28.4	(30/967) 31.0	(24/910) 26.4	(16/966) 16.6
RANDOLPH	(163/5888) 27.7	(29/1164) 24.9	(30/1154) 26.0	(39/1141) 34.2	(37/1190) 31.1	(28/1239) 22.6
GRAVEN	(163/5852) 27.9	(32/1388) 23.1	(34/1305) 26.1	(31/1107) 28.0	(36/953) 37.8	(30/1099) 27.3
CLEVELAND	(146/5220) 28.0	(23/1064) 21.6	(26/1099) 23.7	(26/1030) 25.2	(31/1015) 30.5	(40/1012) 39.5
GUILFORD	(545/19117) 28.5	(141/4132) 34.1	(120/4009) 29.9	(89/3782) 23.5	(103/3682) 28.0	(92/3512) 26.2
DAVIDSON	(217/7577) 28.6	(50/1568) 31.9	(45/1525) 29.5	(45/1465) 30.7	(40/1522) 26.3	(37/1497) 24.7
ENTIRE STATE	(10146) (345001) 29.4	(2224) (74441) 29.9	(2152) (73384) 29.3	(1991) (67145) 29.7	(1938) (64990) 29.8	(1841) (65041) 28.3
CUMBERLAND	(566/19127) 29.6	(137/4269) 32.1	(125/4328) 28.9	(112/3886) 28.8	(69/3074) 29.0	(103/3570) 28.9
DURHAM	(212/7172) 29.6	(52/1551) 33.5	(34/1502) 22.6	(48/1467) 32.7	(43/1285) 33.5	(35/1367) 25.6
ONslow	(370/12344) 30.0	(91/3057) 29.8	(103/2780) 37.1	(68/2390) 28.5	(48/1930) 24.9	(60/2187) 27.1
CATAWBA	(227/7395) 30.7	(43/1450) 29.7	(35/1538) 22.8	(58/1472) 39.4	(39/1441) 27.1	(52/1494) 34.8
ROCKINGHAM	(162/5172) 31.3	(33/1070) 30.8	(32/1062) 30.1	(37/1017) 36.4	(34/1031) 33.0	(26/992) 26.2
BUMCOMBE	(384/11570) 33.2	(75/2462) 30.5	(88/2414) 36.5	(83/2292) 36.2	(78/2233) 34.9	(60/2169) 27.7
SURRY	(158/4728) 33.4	(35/1030) 34.0	(34/969) 35.1	(32/951) 33.6	(19/902) 21.1	(38/876) 43.4
CABARRUS	(179/5227) 34.2	(39/1097) 35.6	(32/1055) 30.3	(26/984) 26.4	(40/1032) 38.8	(42/1059) 39.7
CALDWELL	(214/5755) 37.2	(36/1127) 31.9	(51/1199) 42.5	(47/1157) 40.6	(38/1168) 32.5	(42/1104) 38.0

TABLE II
WHITE PERINATAL MORTALITY RATES IN NORTH CAROLINA
Perinatal Mortality = Fetal Death (Stillbirth) From 20 Weeks of Gestation:
Neonatal Death Within 28 Days of Life
FIVE YEAR AND ANNUAL RATES: 1963, 1964, 1965, 1966, 1967
BY COUNTY OF RESIDENCE: GROUPED BY NUMBER OF DELIVERIES
IN ASCENDING ORDER OF FIVE YEAR RATES

TOTAL DELIVERIES 0 to 1000

COUNTY	FIVE YEAR RATE		1963		1964		1965		1966		1967	
JONES	(5/391)	12.8	(0/78)	0	(1/92)	10.9	(2/94)	21.3	(2/71)	28.2	(0/56)	0
PERQUIMANS	(6/365)	16.4	(1/82)	12.2	(2/76)	26.3	(3/64)	46.9	(0/70)	0	(0/73)	0
CURRITUCK	(7/343)	20.4	(1/73)	13.7	(0/51)	0	(3/70)	42.9	(1/73)	13.7	(2/76)	26.3
NORTHAMPTON	(13/608)	21.4	(3/134)	22.4	(5/139)	36.0	(3/115)	26.1	(0/115)	0	(2/105)	19.0
ANSON	(21/961)	21.9	(6/205)	29.3	(3/207)	14.5	(7/184)	38.0	(2/183)	10.9	(3/182)	16.5
GATES	(6/247)	24.3	(0/61)	0	(3/56)	53.6	(2/49)	40.8	(1/54)	18.5	(0/27)	0
PENDER	(18/715)	25.2	(5/165)	30.3	(1/156)	6.4	(1/136)	7.4	(8/120)	66.7	(3/138)	21.7
BERTIE	(17/664)	25.6	(2/157)	12.7	(3/145)	20.7	(7/137)	51.1	(3/116)	25.9	(2/109)	18.3
WASHINGTON	(18/696)	25.9	(5/122)	41.0	(4/147)	27.2	(2/138)	14.5	(4/156)	25.6	(3/133)	22.6
HYDE	(5/189)	26.5	(2/48)	41.7	(0/44)	0	(1/29)	34.5	(1/35)	28.6	(1/33)	30.3
TYRRELL	(4/151)	26.5	(1/39)	25.6	(0/34)	0	(1/27)	37.0	(2/26)	76.9	(0/25)	0
GRAHAM	(18/628)	28.7	(4/121)	33.1	(5/135)	37.0	(6/137)	43.8	(1/116)	8.6	(2/119)	16.8
WARREN	(12/409)	29.3	(3/115)	26.1	(2/83)	24.1	(2/81)	24.7	(4/78)	51.3	(1/52)	19.2
ENTIRE STATE	(10,146) (345,001)	29.4	(2224) (7441)	29.9	(2152) (73384)	29.3	(1991) (67145)	29.7	(1938) (64990)	29.8	(1841) (65041)	28.3
CHOWAN	(14/474)	29.5	(2/106)	18.9	(3/98)	30.6	(4/95)	42.1	(2/77)	26.0	(3/98)	30.6
GREENE	(17/556)	30.6	(3/130)	23.1	(3/117)	25.6	(3/105)	28.6	(3/87)	34.5	(5/117)	42.7
DARE	(18/570)	31.6	(6/131)	45.8	(5/113)	44.2	(4/104)	38.5	(2/107)	18.7	(1/115)	8.7
SWAIN	(21/664)	31.6	(5/148)	33.8	(7/144)	48.6	(5/120)	41.7	(3/124)	24.2	(1/128)	7.8
HOKE	(19/581)	32.7	(6/129)	46.5	(7/114)	61.4	(2/123)	16.3	(2/120)	16.7	(2/95)	21.1
CAMDEN	(10/264)	37.9	(3/57)	52.6	(2/53)	37.7	(1/54)	18.5	(0/47)	0	(4/53)	75.5
PAMLICO	(15/390)	38.5	(3/81)	37.0	(4/80)	50.0	(0/82)	0	(8/73)	109.6	(0/74)	0
HERTFORD	(26/670)	38.8	(7/147)	47.6	(4/159)	25.2	(4/115)	34.8	(6/121)	49.6	(5/128)	39.1
ALLEGHANY	(27/675)	40.0	(8/148)	54.1	(3/150)	20.0	(5/125)	40.0	(7/137)	51.1	(4/115)	34.8
CLAY	(15/373)	40.2	(5/83)	60.2	(2/76)	26.3	(1/84)	11.9	(2/66)	30.3	(5/64)	78.1
POLK	(33/798)	46.4	(6/164)	36.6	(8/169)	47.3	(5/146)	34.2	(8/164)	48.8	(10/155)	64.5
CASWELL	(36/750)	48.0	(8/167)	47.9	(3/147)	20.4	(14/160)	87.5	(5/133)	37.6	(6/143)	42.0

TOTAL DELIVERIES 1001-2000

MARTIN	(22/1153)	19.1	(5/282) 17.7	(4/247) 16.2	(5/222) 22.5	(3/188) 16.0	(5/214) 23.4	
BEAUFORT	(38/1958)	19.4	(3/387) 7.8	(10/384) 26.0	(4/388) 10.3	(10/399) 25.1	(11/400) 27.5	
CHEROKEE	(28/1348)	20.8	(2/244) 8.2	(4/249) 13.6	(7/252) 27.8	(7/275) 25.5	(8/283) 28.3	
PASQUOTANK	(31/1467)	21.1	(2/365) 5.5	(12/358) 33.5	(6/250) 24.0	(7/256) 27.3	(4/238) 16.8	
YANCEY	(27/1242)	21.7	(7/289) 24.3	(5/272) 18.4	(2/215) 9.3	(7/225) 31.1	(6/241) 24.9	
TRANSYLVANIA	(43/1776)	24.2	(9/343) 26.2	(3/387) 7.8	(17/372) 45.7	(8/319) 25.1	(6/355) 16.9	
MACON	(29/1151)	25.2	(5/264) 18.9	(2/256) 7.8	(10/220) 45.5	(10/207) 48.3	(2/204) 9.8	
JACKSON	(37/1312)	28.2	(10/298) 33.6	(8/258) 31.0	(5/251) 19.9	(9/267) 33.7	(5/238) 21.0	
BLADEN	(40/1386)	28.9	(3/288) 10.4	(12/296) 40.5	(4/254) 15.7	(12/291) 41.2	(9/257) 35.0	
FRANKLIN	(31/1066)	29.1	(6/245) 24.5	(5/244) 20.5	(5/206) 24.3	(2/197) 10.2	(13/174) 74.7	
VANCE	(47/1610)	29.2	(11/374) 29.4	(9/337) 26.7	(10/320) 31.2	(7/287) 24.4	(10/292) 34.2	
PERSON	(44/1504)	29.3	(7/352) 19.9	(14/349) 40.1	(7/288) 24.2	(10/279) 35.8	(6/236) 25.4	
<u>ENTIRE STATE</u>	<u>(10,146)</u> (345,001)	29.4	<u>(2224)</u> (74441)	29.9 (73384)	<u>(2152)</u> (67145)	29.7 (64990)	<u>(1938)</u> (65041)	29.8 (65041)
ALEXANDER	(44/1468)	30.0	(7/326) 21.5	(10/310) 32.3	(14/269) 52.0	(6/301) 19.9	(7/262) 26.7	
AVERY	(36/1188)	30.3	(5/255) 19.6	(4/267) 15.0	(8/215) 37.2	(12/228) 52.6	(7/223) 31.4	
STOKES	(59/1932)	30.5	(12/402) 29.9	(17/399) 42.6	(3/348) 8.6	(16/397) 40.3	(11/386) 28.5	
CHATHAM	(49/1495)	32.8	(8/323) 24.8	(14/308) 45.5	(17/291) 58.4	(5/279) 17.9	(5/294) 17.0	
ASHE	(61/1821)	33.5	(12/387) 31.0	(15/392) 38.3	(15/353) 42.5	(7/352) 19.9	(12/337) 35.6	
WATAUGA	(58/1708)	34.0	(15/378) 39.7	(9/359) 25.1	(12/341) 35.2	(9/304) 29.6	(13/326) 39.9	
MADISON	(46/1338)	34.4	(9/296) 30.2	(7/283) 24.7	(9/243) 37.0	(11/259) 42.5	(10/255) 39.2	
GRANVILLE	(46/1300)	35.4	(11/287) 38.3	(16/282) 56.7	(5/256) 19.5	(6/234) 25.6	(8/241) 33.2	
BRUNSWICK	(47/1323)	35.5	(13/288) 45.1	(6/312) 19.2	(8/218) 36.7	(12/256) 46.9	(8/249) 32.1	
SCOTLAND	(55/1509)	36.4	(8/316) 25.3	(10/300) 33.3	(19/291) 65.3	(5/294) 17.0	(13/308) 42.2	
MITCHELL	(44/1156)	38.1	(9/265) 34.0	(10/219) 45.7	(8/212) 37.7	(8/214) 37.4	(9/246) 36.6	
MONTGOMERY	(47/1205)	39.0	(10/235) 42.6	(7/265) 26.4	(13/226) 57.5	(8/250) 32.0	(9/229) 39.3	
DAVIE	(56/1394)	40.2	(6/293) 20.5	(10/287) 34.8	(13/289) 45.0	(18/271) 66.4	(9/254) 35.4	

T A B L E II Continued

COUNTY	FIVE YEAR RATE		1963		1964		1965		1966		1967	
ORANGE	(58/1334)	43.5	(18/291)	61.9	(9/302)	29.8	(8/266)	30.1	(11/242)	45.5	(12/233)	51.5
CATAWBA	(54/1161)	46.5	(8/233)	34.3	(8/219)	36.5	(13/239)	54.4	(12/240)	50.0	(13/230)	56.5
MARTIN	(82/1667)	49.2	(15/358)	41.9	(18/362)	49.7	(23/348)	66.1	(11/308)	35.7	(15/291)	51.5
PENDER	(51/1033)	49.4	(11/222)	49.5	(9/229)	39.3	(14/198)	70.7	(7/189)	37.0	(10/195)	51.3
BERTIE	(86/1723)	49.9	(17/372)	45.7	(27/406)	66.5	(18/359)	50.1	(14/308)	45.5	(10/278)	36.0
SCOTLAND	(71/1400)	50.7	(19/295)	64.4	(14/269)	52.0	(11/287)	38.3	(14/281)	49.0	(13/268)	48.5
GRANVILLE	(100/1967)	50.8	(22/432)	50.9	(30/404)	74.3	(18/393)	45.8	(15/358)	41.9	(15/380)	39.5
HERTFORD	(89/1717)	51.8	(21/414)	50.7	(15/327)	45.9	(20/395)	50.6	(19/301)	63.1	(14/280)	50.0
CASWELL	(57/1093)	52.2	(10/242)	41.3	(16/251)	63.7	(8/228)	35.1	(11/176)	62.5	(12/196)	61.2
ENTIRE STATE	(8373) (160262)	52.2	(1838) (34809)	52.9	(1894) (34614)	54.7	(1672) (32224)	51.9	(1492) (29441)	50.7	(1477) (29192)	50.6
RICHMOND	(88/1674)	52.3	(20/356)	56.2	(18/365)	49.3	(20/334)	59.9	(13/304)	42.6	(17/315)	54.0
BEAUFORT	(81/1534)	52.8	(20/354)	56.5	(19/350)	54.3	(15/294)	51.0	(15/261)	57.5	(12/275)	43.6
IREDELL	(94/1781)	52.8	(19/397)	47.9	(25/370)	67.6	(9/360)	25.0	(19/353)	53.8	(22/301)	73.1
BLADEN	(74/1390)	53.2	(10/318)	31.4	(23/297)	77.4	(15/292)	51.4	(14/251)	55.8	(12/232)	51.7
HOKE	(67/1191)	56.3	(13/278)	46.8	(16/244)	65.6	(9/217)	41.5	(13/215)	60.5	(16/237)	67.5
DAVIDSON	(78/1373)	56.6	(11/289)	38.1	(21/287)	73.2	(11/264)	41.7	(17/274)	62.0	(18/259)	69.5
MOORE	(63/1426)	58.2	(25/311)	80.4	(17/316)	53.8	(20/297)	67.3	(15/252)	59.5	(6/250)	24.0
FRANKLIN	(98/1652)	59.3	(18/373)	48.3	(27/386)	69.9	(20/333)	60.1	(16/293)	54.6	(17/267)	63.7
JOHNSTON	(112/1841)	60.8	(27/382)	70.7	(24/405)	59.3	(26/380)	68.4	(20/358)	55.9	(15/316)	47.5
GREENE	(66/1061)	62.2	(8/246)	32.5	(14/245)	57.1	(18/212)	84.9	(12/201)	59.7	(12/157)	76.4
ANSON	(102/1587)	64.3	(19/299)	63.5	(25/324)	77.2	(15/334)	44.9	(23/313)	73.5	(20/317)	63.1
UNION	(111/1719)	64.6	(27/336)	80.4	(21/366)	57.4	(24/362)	66.3	(19/308)	61.7	(20/347)	57.6
PERSON	(86/1280)	67.2	(21/311)	67.5	(22/269)	81.8	(18/268)	67.2	(11/222)	49.5	(14/210)	66.7
WARREN	(88/1300)	67.7	(21/308)	68.2	(17/318)	53.5	(19/271)	70.1	(22/225)	97.8	(9/178)	50.6
TOTAL DELIVERIES 2001-10500												
ONSLOW	(76/2277)	33.4	(16/467)	34.3	(14/476)	29.4	(13/461)	28.2	(13/414)	31.4	(20/459)	43.6
CLEVELAND	(86/2466)	34.9	(23/518)	44.4	(13/506)	25.7	(14/499)	28.1	(15/458)	32.8	(21/485)	43.3
ROCKINGHAM	(87/2203)	39.5	(19/440)	43.2	(16/455)	35.2	(22/446)	49.3	(16/415)	38.6	(14/447)	31.3
GASTON	(102/2464)	41.4	(28/492)	56.9	(21/480)	43.8	(19/484)	39.3	(14/509)	27.5	(20/499)	40.1
CUMBERLAND	(354/7450)	47.5	(71/1619)	43.9	(81/1669)	48.5	(63/1535)	41.0	(71/1238)	57.4	(68/1389)	49.0
ALAMANCE	(113/2361)	47.9	(27/515)	52.4	(20/516)	38.8	(20/445)	44.9	(22/460)	47.8	(24/425)	56.5
MECKLENBURG	(501/10371)	48.3	(113/2261)	50.0	(138/2310)	59.7	(83/1954)	42.5	(79/1891)	41.8	(88/1955)	45.0
PITT	(181/3730)	48.5	(38/792)	48.0	(35/833)	42.0	(44/730)	60.3	(36/692)	52.0	(28/683)	41.0
ROBESON	(377/7768)	48.5	(86/1684)	51.1	(76/1677)	45.3	(82/1538)	53.3	(63/1437)	43.0	(70/1432)	48.9
SAMPSON	(110/2159)	50.9	(23/473)	48.6	(26/445)	58.4	(16/430)	37.2	(23/390)	59.0	(22/421)	52.3
DURHAM	(244/4756)	51.3	(66/1050)	62.9	(62/1014)	61.1	(43/947)	45.4	(41/864)	47.5	(32/881)	36.3
CRAVEN	(119/2302)	51.7	(19/514)	37.0	(28/486)	57.6	(29/477)	60.8	(20/421)	47.5	(23/404)	56.9
WAKE	(330/6344)	52.0	(69/1368)	50.4	(67/1289)	52.0	(77/1298)	59.3	(59/1177)	50.1	(58/1212)	47.9
ENTIRE STATE	(8373) (160282)	52.2	(1838) (34809)	52.8	(1894) (34614)	54.7	(1672) (32224)	51.9	(1492) (29441)	50.7	(1477) (29192)	50.6
WAYNE	(189/3509)	53.9	(42/780)	53.8	(43/777)	55.3	(46/761)	60.4	(33/605)	54.5	(25/586)	42.7
HALIFAX	(249/4496)	55.4	(49/960)	51.0	(55/987)	55.7	(51/909)	56.1	(55/856)	64.3	(39/784)	49.7
NEW HANOVER	(131/2364)	55.4	(22/516)	42.6	(26/515)	50.5	(32/479)	66.8	(29/434)	66.8	(22/420)	52.4
EDGECOMBE	(214/3825)	55.9	(61/892)	68.4	(47/654)	55.0	(33/767)	43.0	(34/686)	49.6	(39/626)	62.3
COLUMBUS	(132/2327)	56.7	(29/491)	59.1	(30/497)	60.4	(26/482)	53.9	(25/426)	58.7	(22/431)	51.0
GUILFORD	(458/7940)	57.7	(90/1617)	55.7	(115/2682)	68.4	(104/1646)	63.2	(78/1543)	50.6	(71/1452)	48.9
VANCE	(122/2067)	59.0	(24/426)	56.3	(19/434)	43.8	(21/418)	50.2	(27/398)	67.8	(31/391)	79.3
WILSON	(193/3270)	59.0	(42/686)	61.2	(41/700)	58.6	(41/685)	59.9	(25/617)	40.5	(44/562)	75.6
LENOIR	(162/2709)	59.8	(30/627)	47.8	(34/605)	56.2	(33/524)	63.0	(40/504)	79.4	(25/449)	55.7
NASH	(203/3293)	61.6	(56/780)	71.8	(51/765)	66.7	(38/636)	59.7	(27/572)	47.2	(31/540)	57.4
HARNETT	(128/2055)	62.3	(35/441)	79.4	(19/475)	40.0	(22/416)	52.9	(20/387)	51.7	(32/336)	95.2
NORTHAMPTON	(134/2130)	62.9	(39/522)	74.7	(35/522)	67.0	(28/408)	68.6	(18/359)	50.1	(14/319)	43.9
FORSYTH	(402/6178)	65.1	(82/1368)	59.9	(98/1244)	78.8	(86/1212)	71.0	(71/1153)	61.6	(65/1201)	54.1

That plus-minus figure, twice the calculated Standard Error, indicates, with some uncertainties, the limits between which, 95 times out of a hundred, chance alone could cause the variability. One can say with considerable assurance (95% confidence) that something other than chance would have to be involved if the incidence of perinatal mortality in a specific experience were to be greater than the rate plus twice the value of the Standard Error or less than the rate minus twice its Standard Error.

The calculation of the Standard Error is a statistical manipulation which accurately gives a measure of the part that chance alone plays, for instance, in the frequency of black balls which will be drawn among a given large number of white balls from a chuck-a-luck cage. It can be applied with considerable accuracy to the similar influence of chance alone on the incidence of perinatal deaths. It can be taken, therefore, as an indication of the extent to which chance alone might reasonably be expected to vary the rate for which it was calculated.

When there are only small numbers of deaths and deliveries, chance plays a big role and the Standard Error figure is large. When the numbers of deaths are five or less and of total deliveries 100 or less, the situations are such that the usual rules of chance do not hold and the Standard Errors are not even computed. When the numbers of deaths and of deliveries are large, as in the statewide experience, the calculated Standard Errors are so small as to be virtually negligible.

To use with ease the Standard Error figures shown on Table I and ignoring the theoretical basis for calculation just add to, and subtract from, the five year rate given for a county the " ± 2 S. E." figure. If the State rate falls outside the interval between the county rate and the county rate plus or minus the "2 S. E." figure, there is reason to think that the county rate differs significantly from the state rate. There will be approximately only five chances out of one hundred that an interval calculated in this way would not contain the state rate if chance alone were the entire cause of the difference. In general, then, when a county

rate less twice its Standard Error is still above the State average, it is cause to review possible reasons for the variation since statistics are of no help beyond directing attention to a possible problem.

Evaluation

Quick computation indicates that the five-year white perinatal mortality rate in only five counties exceeds the average white perinatal mortality rate for the state as a whole during the same period by more than twice the calculated Standard Error. The same can be said of seven counties in regard to their five-year nonwhite perinatal mortality rates.

From this information, one can quite strongly suspect that those relatively few rates reflect some local peculiarity in facilities, in the white or the nonwhite population or in the performance of the personnel involved in maternity care—including in some instances, that of midwives. Those rates, then, to all intents and purposes over and above the usual potential effects of chance alone, point to conditions which might be improved and which call for study on the part of local physicians.

The comparison of individual counties with high race specific rates to those with low rates is more complicated since chance alone could have played a significant part in the production of both rates. The potential effect of chance alone can be virtually excluded from the relationship between several of the highest perinatal mortality rates and some of the lower rates by the use of a generally accepted formula which is closely related to that for determining the Standard Errors of single rates. When this is done, the implication is that very definitely in connection with a number of the nonwhite rates, and likely for some white rates, there are underlying causes over and above the potential effects of chance. Those "other causes" again would lie with such things as available facilities, population characteristics or medical personnel.

Table 2 demonstrates the actual fluctuations which have taken place in *annual* county perinatal mortality rates in North Carolina during the past five years. Those

usually wide fluctuations may have been induced by changes in population partly in facilities or in medical practice and personnel, but they must, in the main, reflect the influence of chance alone on the obstetric experience of single years.

Table 2 also shows that there were ten counties in which the annual perinatal mortality rates for white and nonwhite deliveries were below, and nine counties in which they were above, the annual race specific averages for the State as a whole, for each of the five successive years. This demonstration of consistency ought to be meaningful even without the calculation of Standard Errors.

While those latter nine counties might have been unlucky enough to have just had five "bad years" in a row, the implication is that at least the ones which also had the higher five-year averages are quite surely faced with conditions which could properly be considered to require investigation.

As things are at present, the extent of the effect on race specific perinatal mortality rates of differences in population will usually be difficult to assess with any degree of exactness. Individual knowledge of definite differences may allow a degree of evaluation in the analysis of a county's perinatal loss rates. In this connection it can be pointed out, by way of example, that two of the consistently and widely different rates for white perinatal mortality come from contiguous counties with more or less similar numbers of annual deliveries. Here, for instance, it is said that the white populations and the general characteristics of their hospitals are essentially identical.

The possible influence of the available facilities on county perinatal mortality can only be inferred. It must be remembered that by using the word "availability" it is intended to imply not only the quality of those facilities themselves, but also the frequency and the ease with which those facilities can be used. This involves, among many other factors, the finances to pay for such use.

Since the statistics presented here are based on county of residence rather than

on the county in which delivery occurred, the frequently voiced allegation that high risk cases are selectively transferred to a particular area has no bearing. Local physicians may, of course, be relieved of the responsibility for any out-of-county perinatal deaths.

Absolute proof of the significance of the demonstrated differences between county perinatal mortality rates is therefore not possible, nor whether those differences in rate reflect differences in population characteristics, in availability of medical facilities or in the personnel and practices of local maternity care. Each physician will, therefore, have to make his own evaluation on the basis of his knowledge of local conditions.

It does, however, seem safe to say that the county perinatal mortality rates do point to some conditions that might well be improvable: race specific five-year rates which in some counties with over 1,000 deliveries are more than double those in others; counties whose annual perinatal mortality rates are consistently above the annual averages for the state as a whole; counties whose five-year rates exceed the State's five-year average by more than twice their standard errors; counties the five-year perinatal mortality rates of which exceed those in others by more than the 95% confidence interval for the effect of chance alone.

The Monthly Tables

In the table to be published monthly, the counties are presented in alphabetical order. The figures published in each monthly table of perinatal mortality will involve primarily the vital statistics of the third previous month. The live births, stillbirths and neonatal deaths will be those the certificates for which reached the Board of Health between the first of the third previous month and the first of that month just preceding the month of publication. Not all of those certificates refer to events which took place during the third previous month but nearly all of them do. The certificates received during that interval are bound together and treated together and labeled with the name of the preceding month as the "Principle Month of Occurrence."

The 12-month running mean shown in the right hand column for each race, then, always represents the 12 "Principle Months of Occurrence" from 15 to 3 months before that of publication.

The figures shown in this month's JOURNAL (January), for instance, cover all the live birth, stillbirth, and neonatal death certificates which were received at the Board of Health from October 1 to November 1, 1968. Most of the events which they reported had occurred in October.

The variability of monthly rates would, of course, be extreme and for the most part meaningless. For that reason they are not calculated. In the data to be included in the monthly report, only the numbers of recorded deaths are listed.

The rates are calculated for the previous 12 months: the 12-month running mean. The actual total numbers of deaths and births reported during that 12-month period are also shown before the calculated rate to indicate the size of the series and the true number of babies lost. It should be pointed out, too, that because of the great span of invalidity which would usually be involved, even the 12-month rates are not calculated for series of 100 total deliveries or less and with five or fewer deaths.

The significance of monthly publication of the running mean is quite different from that of the five-year rates. The Standard Errors of most of those annual means would be so large that the differences between county perinatal mortality rates themselves would seldom exceed the potential effects of chance alone. The Standard Errors are not calculated for that reason.

The monthly publication of county perinatal mortality rates is, therefore, mainly for monitoring the month-to-month progress of each separate county, much as the modern efficient manufacturer keeps routinely recurring checks on the number of rejects from an assembly line.

Perinatal mortality reports will make it possible for the local physician in the same

way to keep track of the trend within his county and in rough comparison to other counties of similar size and of population composition with which he may be familiar.

The rates themselves, for that matter, can always be taken more or less as expressions of fact, without any reference to the potential effect of chance and without any implications in regard to the relative quality of maternity care which they might be thought to indicate. They do represent the actual proportion in which, for each county, pregnancy ended unsatisfactorily.

There are, finally, a couple of medical situations where the statistics do not involve uncertainty. No one can logically question the success of maternity care that is represented by successive and accurately low perinatal mortality rates, and there is no point in bothering about the potential effect of chance alone on a continuously downward trend line.

The perinatal mortality rate for the state as a whole was lower in 1967 than it had been in 1966. May the trend continue and in the proper counties!

Conclusion

It seems evident on the basis of five-year county statistics for perinatal mortality and considering the trends of the annual rates during the same period that avoidable perinatal losses may be occurring in some North Carolina counties.

Monthly publication of the running 12-month race specific means will allow local physicians to follow the trend of perinatal mortality in their own counties and in rough comparison to those in other counties of more or less similar size and population.

This information is intended to interest the local practitioner in the perinatal mortality occurring to residents of his county and to encourage him, where indicated, in his continuing efforts to reduce the rates.

Reference

1. Rogers, P. B. Council, C. R., Abernathy, J. R.: Testing Death Registration Completeness in a Group of Premature Infants", Pub Health Rep. 76:717-724, 1961.

TOTAL DELIVERIES AND PERINATAL DEATHS BY COLOR FOR COUNTIES AND SELECTED CITIES
OF RESIDENCE, WITH RATES PER 1,000 DELIVERIES¹: NORTH CAROLINA,
OCTOBER 1968 AND MOST RECENT 12-MONTH TOTALS

County	WHITE					NONWHITE					County	WHITE					NONWHITE				
	Perinatal Deaths		Total Deliveries Nov. 1967-Oct. 1968	Perinatal Rate Per 1,000 Deliveries		Perinatal Deaths		Total Deliveries Nov. 1967-Oct. 1968	Perinatal Rate Per 1,000 Deliveries			Perinatal Deaths		Total Deliveries Nov. 1967-Oct. 1968	Perinatal Rate Per 1,000 Deliveries		Perinatal Deaths		Total Deliveries Nov. 1967-Oct. 1968	Perinatal Rate Per 1,000 Deliveries	
	October 1968	November 1967 - October 1968				October 1968	November 1967 - October 1968					October 1968	November 1967 - October 1968				October 1968	November 1967 - October 1968			
NORTH CAROLINA	169	1920	65592	29.8		110	1422	26656	48.0												
ALABANCE	5	42	1181	3.5		3	21	456	4.1		PENDER	2	5	127	3.9		1	4	165		
ALEXANDER	1	9	286	3.1			2	38			PERQUIMANS		1	68				1	51		
ALLEGHANY	1	1	112					4			PERSON	1	10	231	4.3		2	15	209		
ANSON	1	6	155	3.9			18	293	41.1		PITT	3	17	716	2.4		2	28	655		
ASHE	2	17	320	5.3			1	2			POLK		6	128	9.4		2	20			
AVERY		6	232	2.6				2			RANDOLPH	3	37	1188	3.1		1	4	142		
BEAUFORT	11	390	1942	20.1		1	12	257	46.7		RICHMOND	2	14	457	3.1		1	15	280		
BERTIE	1	1	111			1	12	267	44.9		ROBESON	1	16	618	2.6		5	65	1552		
BLADEN	3	7	266	2.6		1	13	240	54.1		ROCKINGHAM	6	26	958	2.7		2	20	404		
BRUNSWICK		8	286	2.9			9	153	58.1		ROWAN	2	31	1164	2.7		11	327			
BUNCOMBE	6	74	2115	3.5		2	14	295	4.7		RUTHERFORD	4	32	711	4.5		1	9	149		
BURKE	3	21	998	2.1			4	83			SAMPSON	1	14	443	3.2		3	20	380		
CABARRUS	3	34	1060	3.2			12	297	40.4		SCOTLAND	1	9	322			9	243			
CALDWELL	42	1102	1042	10.6			2	106			STANLY	2	22	593	3.7		6	124			
CAMDEN	1	48					3	39			STOKES	1	12	361	3.3		3	48			
CARTERET	2	11	454	2.4		1	5	94			SURRY	1	25	910	2.7		4	58			
CASWELL	7	154	1042	14.8		1	8	185	43.1		SWAIN		1	90			3	56			
CATAWBA	3	48	1468	3.3		3	12	236	50.8		TRANSYLVANIA	1	12	323			3	23			
CHATHAM	1	7	321	2.2			7	194	36.1		TYRRELL		1	20			2	29			
CHEROKEE	1	10	295	3.4				14			UNION	2	31	683	4.5		2	16	369		
CHOWAN		1	94				5	92			VANCE		6	265	2.3		1	17	364		
CLAY	5	80						1			WAKE	5	73	2888	2.5		5	56	1141		
CLEVELAND	2	34	950	3.6		3	19	458	41.5		WARREN		2	77			11	178			
COLUMBUS	2	16	555	2.9			15	364	41.2		WASHINGTON		3	138			4	172			
Craven	1	27	1146	2.4			18	406	44.2		WATAUGA	2	16	320	5.0			6			
CUMBERLAND	10	111	3386	3.3		5	69	1314	41.5		WAYNE	1	29	1123	2.6		5	34	595		
CURRITUCK	1	1	60			1	5	39			WILKES	2	20	756	2.6			6	57		
DARE	3	116						6			WILSON	2	11	541	2.0		1	26	552		
DAVIDSON	7	45	1437	3.1		2	17	281	60.5		YADKIN	2	12	356	3.4			1	30		
DAVIE	1	10	281	3.6			4	55			YANCEY		1	228				1	2		
DUPLIN	1	7	382	1.8			16	339	47.2		CITIES City totals are also included in county totals										
DURHAM	2	45	1451	3.1		1	38	898	42.3		ALBEMARLE		8	164	2.4			50			
EDGECOMBE	2	15	451	3.3		2	19	542	35.1		ASHEVILLE	1	26	766	3.4		2	13	247		
FORSYTH	5	68	2579	2.6		5	70	1135	61.2		BURLINGTON	1	18	520	3.5			6	144		
FRANKLIN		4	170			3	18	262	68.7		CHAPEL HILL		9	243				2	50		
GASTON	6	68	2460	2.7		2	24	547	43.9		CHARLOTTE	7	71	3061	2.3		8	93	1760		
GATES	1	35					4	107													
GRAHAM	3	122						8			CONCORD	1	7	230			7	116			
GRANVILLE	9	219	1042	21.0		2	28	363	77.1		DURHAM	1	24	944	2.5		32	768			
GREENE	2	88				1	12	146	82.1		ELIZABETH CITY	1	5	166			7	113			
GUILFORD	4	120	3629	3.3		6	97	1595	40.6		FAYETTEVILLE	3	36	1125	3.2		2	34	616		
HALIFAX	11	370	1042	35.5		2	41	689	59.6		GASTONIA	3	31	828	3.7		2	17	243		
HARNETT	2	15	580	2.6		3	17	345	49.2		GOLDSBORO	1	10	358			3	16	280		
HAYWOOD	5	28	729	3.8			2	26			GREENSBORO	1	54	1655	3.3		3	57	957		
HENDERSON	2	25	671	3.7			2	34			GREENVILLE	2	7	313			1	8	177		
HERTFORD		6	128	4.7		1	16	275	58.1		HENDERSON		2	111			1	9	146		
Hoke	1	6	111	5.4		1	13	233	55.8		HICKORY		6	359			3	7	108		
HYDE			35					2			HIGH POINT	1	29	812			2	29	447		
IREDELL	1	23	958	2.4		2	20	315	63.5		JACKSONVILLE		17	456	3.7			3	73		
JACKSON		3	232				1	41			KINSTON		1	227			2	15	224		
JOHNSTON	4	24	730	3.3		2	15	328	45.7		LENOIR		8	171	4.0			1	60		
JONES		2	77				4	82			LEXINGTON	1	5	264	1.9			5	79		
LEE	9	382	1042	36.7		1	8	154	51.9		LUMBERTON		6	241	2.5		1	12	192		
LENOIR	2	15	527	2.8		2	25	441	56.7		MONROE	1	8	158	5.1		1	7	117		
LINCOLN	5	22	550	4.0			3	93			NEW BERN		5	165	3.0			9	136		
MCDOWELL	3	10	518	1.9				35			RALEIGH	3	38	1467	2.6		4	33	582		
MACON	2	2	200					9			REIDSVILLE	1	5	134	3.7			4	93		
MADISON	1	7	225	3.1				3			ROANOKE RAPIDS		8	191	4.2			5	63		
MARTIN	2	8	210	3.8		2	11	262	40.0		ROCKY MOUNT E		3	132			1	7	142		
MECKLENBURG	9	98	4582	2.1		8	107	2083	61.4		ROCKY MOUNT N		4	245	1.6			4	90		
MITCHELL		6	208	2.9				1			SALISBURY	1	7	234	3.0			7	131		
MONTGOMERY	2	5	236	2.1			4	119			SANFORD		7	187	3.7			3	76		
MOORE	1	9	509	1.8		1	4	237			SHELBY	1	9	233	3.9		2	8	133		
NASH		10	564	1.8		1	28	529	52.9		STATESVILLE	1	7	265	2.6		1	8	126		
NEW HANOVER	5	35	1062	3.3		2	11	394	27.9		THOMASVILLE	2	5	199	2.5		1	9	118		
NORTHAMPTON		1	94			2	23	319	72.1		WILMINGTON	2	18	537	3.3		2	9	348		
ONSLOW	2	53	2122	2.5			12	436	27.6		WILSON	1	5	302	1.7		1	13	264		
ORANGE		28	758	3.7		1	10	236	42.1		WINSTON SALEM	2	37	1350	2.7		5	66	1060		
PAMLICO		1	91			1	1	63													
PASQUOTANK	1	5	283	1.8			13	215	60.5												

¹Perinatal Death Rate = $\frac{\text{fetal deaths (stillbirths of 20 weeks gestation or more) + neonatal deaths (under 28 days of life)}}{\text{total live births + stillbirths of 20 weeks gestation or more}} \times 1000$

Rates are not calculated for less than 100 deliveries or less than 5 perinatal deaths.

Language Difficulty: An Analysis of Proficiency and Development

VIOLA P. WILLIS, M.S. AND RAYMOND MASSENGILL, JR., ED.D.

It is becoming increasingly evident that effective evaluation of a child must include an estimation of his language ability and an assessment of possible etiologic factors contributing to any observed difficulty. The speech pathologist has a variety of diagnostic tools with which to measure language abilities including measures of sentence length and complexity, evaluative language ability, comprehension, symbolization, and articulation. Norms have been established for these abilities and rating scales applied. For these methods to be utilized, however, a child must be referred for an evaluation. Before such a referral can be made, the possibility of difficulty must be recognized. This recognition often comes from parents who, in turn, consult the physician, or it may come directly from the physician himself and the burden of evaluation falls on him. Most pediatricians and family physicians have neither the time, desire nor facility to present the intricate complexity of tests necessary for an exact and thorough evaluation of a child's linguistic ability. He rather decides to make the proper accurate referral based on his professional observations. The basis for establishing the need for a referral can come from a variety of considerations that can be noted subjectively during routine examinations.

Early Signs of Verbal Difficulties

The end of the first year of life should find the child responding to his name and familiar expressions. He should be repeating sounds that, to the ears of adoring parents, are very much like real words. "Da-da" universally seems to be the first, followed by "bye-bye" and "mama." These sounds become appropriately applied by the age of one. Year two adds a large number of nouns to the child's vocabulary, and by

the third year the rudiments of grammar should be developing. A child, by the age of three years, should be putting words together into phrases and sentences. If this ability is not evident by this age, it is accurate to assume that there are factors impeding the normal pattern of language development. Verbal response length should be increasing with age, following the general pattern of expectation of two word responses from the two-year-old, four word responses from the three-year-old, and so on to eight word responses from the eight-year-old.^{1(p727)}

Any child above the age of seven and one-half who is still experiencing difficulty with any of the speech sounds is exhibiting a delay in articulatory development. Three- and four-year-olds should be correctly producing the lip sounds (m, p, b, w and h). Between the ages of four and five they should acquire proper production of sounds requiring a variety of tongue contacts, including n, t, d, ng, k, g and y. Within the next year the f is added and by six and one-half the v, th (voiced), zh, sh, and l. By seven and one-half all of the sounds, including z, s, r, (voiceless) th, and m should be acquired.^{2(p160)}

Note should be made of such parental complaints as, "he isn't saying nearly as many words as his older brother did at this age"; "He just doesn't seem to respond to even simple commands"; "He seems to know what he wants to tell us but just can't put his words together right"; "The other children in the neighborhood are beginning to tease him about the way he talks." Although often overanxious, parents who report such things are beginning to recognize potential difficulties and are searching for reassurance. A physician can use the rule of thumb that for speech to be defective it must call attention to itself, and any time the speech of a child is defective enough to set him apart from his peers, he has a speech impediment.^{3(p19)}

From the Division of Medical Speech Pathology, Duke University Medical Center, Durham, N. C.

This report was supported in part by a United Medical Research Foundation Grant and a grant from the National Institutes of Health, Bethesda, Md.

Just as in all conditions, prevention is much simpler than "cure." If a potential language difficulty can be identified early enough and, through parental counseling, be prevented from developing, the lengthy, sometimes only partially successful "cure" will be unnecessary. The earlier the referral, the better the chances of successfully preventing the development of maladaptible language behavior. Often delayed language development is indicative of other serious physical, mental, or emotional involvement which requires further diagnosis and makes early recognition even more vital. Through the combined efforts of the child's physician, parents, teachers, and speech pathologist such recognition, evaluation, and necessary counseling and therapy can be initiated as quickly as possible to preclude further involvement.

Referral and Evaluation

The majority of children seen by the Division of Medical Speech Pathology at Duke are referred by their pediatrician, family physician, or the medical director of their public health center. Their referrals are often accompanied by a note expressing the concern of the family, doctor, or most often a common concern about the child's speech and language ability. This source is probably the best from which to receive the child, because the physician has already noted any physiologic difficulties possibly influencing the speech behavior.

When a child is initially seen with the referral of possible speech and language difficulty, the first step is, as in any other situation, to ask the parents for their view of the child's speech behavior. How does his speech relate to that of other children his age? How does his speech difficulty relate to the home situation? A complete medical and social history is quite important in identifying possible causes. If the child is non-verbal, the majority of the information will come from this case history. If other areas of development have been normal or above average, if the parents have no reason to suspect a hearing loss, if the child's observed behavior is in keeping with his chronological age and he is generally alert

and responsive but essentially non-verbal, delayed language development is possibly the answer. The Vineland Social Maturity Scale¹ and the Meacham Language Development Scale,² for which the parents act as informants, are both useful tools.

If the child is verbal and cooperative, a series of tests are administered. The articulation test is generally given first. This evaluation involves an intricate analysis of the child's ability to produce the speech sounds. Difficulties are noted in detail and an assessment of the child's development of articulatory skills is made. Possibly the most commonly used tool is the Templin-Darley Diagnostic Test of Articulation,³ for which age norms have been established.

The next tests conducted are generally ones used to assess vocabulary development. These are not used to establish intelligence quotients but merely to give the speech pathologist an idea of the child's vocabulary development as related to his chronological age.

During all these testing procedures, subjective note is being made of the child's sentence usage, voice quality, ability to follow instructions, self-expression and general behavior. If there is any indication of a delay in language development, if the child is unable to follow simple instructions, unable to express himself adequately in verbal symbols, or in any way unable to function adequately through verbal communication, a language evaluation is conducted. There are a variety of tests for this purpose including the Houston Test of Language Development,⁴ Illinois Test of Psycholinguistic Ability,⁵ and the Picture Story Language Test.⁶ The alert clinician can know which or what sections of all are appropriate for the child.

At Duke we are quite fortunate to have cinefluorographic equipment by which the component parts of the speech mechanism can be viewed during the production of speech. By this method any structural anomalies can be observed.

For the very young child, generally under four, we have felt that the best therapy can be conducted with the mother. This therapy

consists of counseling and is used to teach the mother how to help the child develop speech normally. Mothers receive practical workable suggestions for helping their child. Of course, for children who are mature enough to benefit by such involvement, a therapy program is planned either at Duke or at a facility more conveniently located for the family.

Conclusion

This report has dealt only with problems of speech and language development of children. Speech pathologists, of course, work with all ages and all types of speech involvement. But because of the educational penalties they are likely to receive from defective speech and the socialization that might possibly be thwarted, it is hoped that more and more children with serious difficulties can be helped before reaching school

age. This goal can only be achieved through the efforts of many, not the least of whom is the observant physician who is interested in treating the entire child.

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The Doctor and the Modern Community Hospital

A Partnership in a Changing Society

JOHN GLASSON, M.D.

Over the past fifty years the practice of medicine has gone from a community practice based in the home to a predominantly hospital-based practice. The reasons for this are, of course, numerous. The necessity for the provision of all those services which are available in a hospital and which are not available to the family physician practicing in the home, and the strong trend toward specialization in medical care are probably foremost.

Former Surgeon-General, Luther L. Cherry, writing in the December issue of *Medical Opinion and Review* says:

The delivery of medical care has become a social and economic and political issue although physicians have never wavered in their primary dedication to excellence of patient care. The system by which the care is delivered is undergoing many changes that essentially reflect shifts in priorities. Development

of specialty practice with consequent fragmentation of care and the growth of hospitals as the "hub" of health care are frequently cited as significant changes in this process. Future changes in the delivery of health care—speculative as they may be—should surely be predicated on the fact that health is a basic necessity of life guaranteed to each of our citizens by federal, state and local law.

The physician practicing in the modern community hospital, already hard pressed by the demands of direct patient care, finds himself involved in additional committee work and multiple other duties not directly related to the care of his own patients. Much of this work is now the result of third-party involvement in hospital care. Many long-standing committees find themselves involved with multiple new problems brought on by the socio-economic changes in medicine. New committees such as those concerned with utilization review have emerged. The smaller hospital with relatively small medical staffs can, under these circumstances, find that the few medical staff members can become grossly overloaded with

This paper, written at the request of Dr. Welton, replaces the President's Message this month.

First Vice President, Medical Society of the State of North Carolina.

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this committee work. The efficient operation of these committees has therefore involved consolidation of the work of related committees in each area of the hospital in order to conserve medical manpower. This principle is also being used in some of the larger hospitals to provide for more efficient committee function and likewise conservation of medical talent.

Many excellent articles on the role of the modern community hospital are currently appearing in the press. Examples are the excellent article by Dr. Edwin F. Rosinski in the November 25, 1968 issue of the *Journal of the American Association*, and an article by Dr. John Dietrick, dean of the Cornell University Medical Center, in the *International Medical Digest* of September, 1967. Both of these writers extol the virtues of a close relationship between our teaching centers and our community hospitals. A somewhat contrasting view is expressed by Ray E. Brown, professor of administration, in the faculty of medicine at Harvard University, who is quoted in the November 25, 1968 issue of *Medical Tribune* to the effect that, "Changes in technology, and the complexity of medical 'hardware,' competition to obtain highly skilled technical personnel and the rise of the single purpose service, has made it infeasible to continue in operation some two-thirds of the nation's 7,200 voluntary hospitals." Professor Brown is further quoted as saying that the "medical staffs of small hospitals, unlike their counterparts in the major medical centers, do not associate with each other in a professional sense."

In this connection, it is well recognized by hospital authorities and physicians alike that in order to justify a full range of services and complete equipment, the modern hospital, if it is to be a complete unit, must approach the range of 400 to 500 beds. Large size, of necessity, however, produces problems in logistics, parking space, and some general confusion, which can certainly interfere with the efficient and desirable type of health care provided to outpatients. The truth in this matter may be that while certain categories of patients do require hospitalization and the facilities of the hospital,

there is a real question as to whether care for the great bulk of ambulatory, non-emergency patients can be handled most efficiently in the centralized setting of a large hospital. Convenience and efficiency may in some instances call for decentralization of medical services. An examination of the role of the practicing physician in his relationship with the community hospital might be explored under the following headings:

Administration

The participation of the practicing physician in administrative decisions requiring medical opinion must be constantly available to the modern hospital administrator in the interest of good patient care. The American Medical Association and the North Carolina Medical Society and others are emphasizing the importance of membership on hospital boards of trustees by practicing physicians. The physician may also exert, in this connection, a useful role as a member of medical board and joint conference committees consisting of both trustees and medical staff members. Representative areas in administration requiring medical opinion include such things as (1) professional evaluation of staff members; (2) consultation regarding purchasing of medical equipment and supplies; (3) participation on committees involved with keeping of adequate patient records in the hospitals, and now recently concerned with the development of computerized information systems which are being found so important in the improvement of efficient record-keeping and in the facilitation of clinical research; (4) committee work concerned with the construction and planning of new facilities; and (5) committees aimed at proper coordination between administrative personnel, doctors, nurses, and paramedical personnel in the total team approach to efficient patient care.

Utilization Review

The widespread development of functioning utilization review committees has been, of course, stimulated by the requirements of the Medicare program. This committee, as originally constituted, has an educational function which may involve virtually all as-

pects of the operation of the modern community hospital. The hospital and physicians find themselves in a joint involvement with third parties, both through multiple federal and state programs and through privately operated insurance programs providing financial support in patient care. There can be but little doubt that these functioning committees have served a good purpose in their first three years of operation. The whole question of utilization review was beautifully treated in the article published by Dr. Michael F. Keleher in the NORTH CAROLINA MEDICAL JOURNAL in June, 1967.

Besides serving as a member of the utilization review committee, a practicing physician must exercise personally an active role in the control of proper utilization by avoiding hospitalization of patients unless absolutely necessary, and by reducing the hospital stay for each patient to a minimum. He must see that extended care facilities including nursing homes and home care services are used to a maximum, in order to avoid the unnecessary use of general hospital beds which now costs each community approximately \$35,000 in construction costs. Individual decisions by the practitioner in ordering laboratory work, use of appropriate automated laboratory tests, and elimination of unnecessary procedures must be kept constantly in mind. Any savings passed on to the patient may then help to stem the tide of rising medical costs.

Medical Education

Probably no other category of effort in the community hospital has as much to do with good patient care as the efforts which are made in that hospital toward continuing medical education. Recent months and years have continued to demonstrate a stronger and stronger cooperative effort between our university teaching centers and our community hospitals, to the mutual benefit of both types of institutions in their primary functions. The employment of directors of medical education by many community hospitals has had a strong influence on the growth and efficiency of these programs, and each year finds more community hospitals benefitting from this type of program throughout the

country. Through these cooperative programs with community hospitals, our teaching centers may find that they can provide our national health system both increasing numbers of needed doctors as well as paramedical personnel.

Besides participating regularly in continuing education programs for his own benefit, the practicing physician must involve himself with the day-by-day education of house staff, nurses, and paramedical personnel. The great demand for nurses dictates that strong support must be given to all types of facilities for nursing education, including our degree schools at teaching institutions and our diploma schools both in community hospitals and in association with community colleges. We must not become involved in or allow controversy favoring one type of program over the other, for we need the skills and numbers produced by all three types of programs.

It is noteworthy that some 40 hospitals in the state of California have adopted a recommendation by the California Medical Association that proof of continuing education is a prerequisite for reappointment of medical staff members in these hospitals. The practicing physician must be continually reassessing himself from a professional standpoint and continually taking advantage of all services available to him for continuing education if he is to avoid being audited and assessed by organizations or third parties possibly not as well qualified in making these assessments as professional practice organizations are.

Governmental agencies are now, in some instances, charging lay hospital authorities with the duty of setting rules governing the professional conduct of physicians and of determining the conditions under which the "privilege of practice" may be available to physicians in community hospitals.

Drugs

In relation to his practice in the community hospital, the modern physician must be increasingly involved both with active participation as a member of his pharmacy committee and with his individual use of drugs both in and out of the hospital. He needs to

stay currently abreast of the running controversy between the Food and Drug Administration and drug manufacturers regarding generic versus brand-name drugs, and must keep as well abreast as possible of developments regarding the efficacy and the ethics in the use of drugs.

As another avenue for decreasing costs to the hospital patient, the practicing physician must be as cooperative as possible with the hospital pharmacy in the use of drugs which are felt to be equivalent in action. This, of course, can avoid unnecessary duplication in the purchase of drugs by the pharmacy with resultant overall savings to the public.

Public Relations

By tradition, the physician tends to be rather retiring insofar as public relations are concerned, but in view of the multiple problems associated with treatment in a community hospital, the practicing physician must now become aware of the many problems and inconveniences which the patient experiences in receiving his health care in any hospital. The problems of short visiting hours, high costs of medical care, limited bed space, and need for carefully observed limits on utilization of beds are examples. Some attempt at explaining to the family what is being done in the care of any individual patient must occupy some of the valuable time of the practicing physician.

Traditionally, public relations departments of community hospital have, in many instances, found themselves largely confined to submission of hospital-related news through the public press either about activities at the hospital or about activities of the staff of the hospital. Reports of free examinations of local school athletes by members of the hospital staff serve the cause of good public relations more effectively than do accounts of the various meetings which staff members have attended recently.

The usually retiring doctor must indeed, in the field of public relations, take a somewhat more enlightened attitude in his cooperation and dealings with the press. He must find time for active participation in the activities of his Chamber of Commerce

or the many other representative community groups which are organized for the common good.

Planning

With respect to the planning of community hospitals and medical facilities, there are probably few areas in which the counsel of practicing physicians is more greatly needed and at the same time more sparingly sought. It is noteworthy that in the case of the 48-member Advisory Council on Comprehensive Health Planning for the State of North Carolina, whose motto is "Partnership for Health," only two practicing physicians are included in the "partnership." It is certainly important that this committee be composed of consumers, providers, and knowledgeable citizens of the state, but it would seem that the providers of health care probably should be allotted a stronger role in planning in this instance.

Dr. Eugene Feingold, Ph.D., of the University of Michigan School of Public Health, reports from its department of medical care organization that the future of community health planning appears to be a rocky one because, "planners must deal with powerful institutions which are the bulwark of the system which health planners must change." Dr. Feingold identified these institutions as, "hospitals, physicians, and other components of existing patterns of private professional practice." Dr. Feingold also points out that planners must have working knowledge of how political power works in the planning setting. It would seem obvious, therefore, that if practicing physicians are to be able to continue to provide the best possible care for the largest number of patients, they must be politically active and politically oriented.

The various regional health planning councils in North Carolina and in other states are doing an outstanding job, even though again an examination will show that physicians are used primarily in an advisory role. These organizations support hospital systems, assigning the special fields of service to each hospital according to the types and numbers of personnel available and the equipment present in these specific hospitals.

Ideally, each hospital in such a system benefits by the more efficient utilization of its beds and facilities. The system of specialized hospitals in the Greenville, South Carolina area is a good example of the successful implementation of this principle, and is serving to give the public the best possible value for its hospital dollar.

Dr. Dwight L. Wilbur, in the December 9 issue of the *A.M.A. News*, points out that health planning and the tremendous size of the problems involved tends to produce divisiveness between the various specialists, the consumers, the providers, and the planners. He makes an eloquent plea for humility, honesty, and understanding and cooperation between all the groups involved. The practicing physician in the setting of his community hospital must take these things into self available for meaningful participation account, and must in any event, hold him- in this somewhat indirectly related aspect of patient care.

Another aspect of community hospital and medical facility planning concerns the necessity for distinguishing between the various types of group practice. Many experts are advocating the association of group practice facilities physically within large hospital centers. The fee for service group maintains the privilege of the patient to choose his physician. It maintains incentive and competition among practicing physicians, and probably leads to more personal and more efficient patient care. The closed panel group employs salaried physicians, and its patients are required to go to this limited panel of physicians for treatment, after prepayment of dues required for membership in the closed

panel association. This arrangement tends to eliminate healthy competition and incentive. A condition is fostered in which the time and care exerted by the physician is not directly related to the compensation which he receives. The need for distinguishing between these two types of groups has been pointed out by Mr. Ned F. Parrish, executive vice-president of the National Association of Blue Shield Plans, speaking at a recent Blue Shield Blue-Cross joint national advertising and public relations conference in Los Angeles. He said, "Proponents of pre-paid closed panel group practice on a capitation basis have sought to gain support and acceptance by citing the rapid growth of group practice." Mr. Parrish added that, "While fee for service groups have doubled in the past seven years, the same can not be said of closed panel groups." Any community must be alert to these facts in planning its hospital and medical facilities.

Summary

Thus the practicing physician, as noted in these and many other instances, if he is to play an effective role in his medical community on behalf of his patients, must give time, effort and thought to many problems not directly related to patient care. He must be knowledgeable politically. For his voice to be effective, he must speak in concert with his fellow physicians as members of county, state, and national professional medical organizations. He must also give active support to their related auxiliaries, the inter-professional associations, and the political action associations sponsored by organized medicine.

UNC Postgraduate Program

The Office of Continuation Education of the University of North Carolina School of Medicine has announced its schedule of postgraduate meetings for January, February, and March, 1969.

A series of meetings began in Edenton on January 8 and will continue on Wednesdays through February 12. The January 15 meeting will be held in Elizabeth City, the January 29 meeting in Ahoskie. Beginning January 9 and continuing on Thursdays through February 13, the programs are being offered in Kinston.

Beginning February 24 a series of postgraduate meetings will be held in Statesville and Shelby. The Statesville meetings will be held on Tuesdays, February 24 through April 1. The Shelby meetings will be held on Wednesdays, February 25 through April 2.

On March 8 the Department of Ophthalmology will sponsor a seminar. Dr. Harold Scheie, professor of ophthalmology at the University of Pennsylvania School of Medicine, will be the guest speaker. Registration will begin at 9:00 a.m. in the Department of Ophthalmology, North Carolina Memorial Hospital, Chapel Hill.



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SUGGESTIONS FOR AUTHORS

The NORTH CAROLINA MEDICAL JOURNAL welcomes original contributions to its scientific pages, expecting only that they be under review solely by this JOURNAL at a given time, and that they follow a few simple guidelines. The guidelines are as follows:

1. Subject Matter

Educational articles, especially those in which particular applications to the practice of medicine in North Carolina are developed, are one of the main objectives of this JOURNAL.

Articles reporting original work by North Carolina physicians are invited, whether the work is

done in a clinic, a laboratory, or both. The editor and his consultants will evaluate the work by the usual criteria, including a proper discussion of previous work, control observations, and statistical tests where indicated.

Historical articles, especially those dealing with local history, are considered of real value and interest.

2. Manuscripts

An original and a carbon copy of the manuscript should be submitted, one for review by the editorial staff, the other by referees. The manuscript should be typed on standard-size paper, double-spaced, with wide margins (one inch on each side).

3. Bibliographic References

References to books and articles should be indicated by consecutive numerals throughout the text and then typed, double-spaced, on a separate page at the end of the manuscript. Books and articles not indicated by numerals in the paper should not be included.

References will be much more valuable to the reader if they are given in a proper form and contain the full information necessary to locate them easily. The North Carolina Medical Journal follows the form used in the journals of the American Medical Association and the Index Medicus, giving the author's surname and initials, title of the article, name of the periodical, volume, inclusive page numbers, and the date of publication. It is believed that this style makes it easier for the reader to judge whether the reference is likely to prove useful to him, and enables him to locate it more quickly.

4. Tables and Illustrations

Tables and legends for illustrations should be typed on separate sheets of paper. The illustrations should be glossy black-and-white prints or line drawings. It is necessary to obtain permission from the author or publisher to reproduce illustrations which have been published elsewhere.

The North Carolina Medical Journal pays up to \$20 on the cost of cuts for any one article. This amount usually covers the expense of reproducing from two to five illustrations, depending on the size and type of cuts required. Line drawings and graphs are usually less expensive to reproduce than photographs. Authors may publish additional illustrations by paying the extra cost.

5. Style

The style followed by this JOURNAL will be, in general, that outlined in the Style Book issued by the Scientific Publications Division of the American Medical Association, John H. Talbot, M.D., director. All manuscripts are subject to editorial revision for such matters as spelling, grammar and the like.

By following the above suggestions, writers will greatly expedite the publication of papers accepted by the North Carolina Medical Journal.

THE AMA AT MIAMI

Among those representing the Medical Society of the State of North Carolina at the Clinical Meeting of the AMA in Miami last month were a member of the AMA Board of Trustees, a full quota of delegates, and alternate delegates, the Medical Society President, several physicians holding official AMA assignments, key members of the Headquarters Staff, and others. A busy schedule left little time for Florida sunshine or the "Moon over Miami."

In his remarks to the House of Delegates President Dwight Wilbur registered his call for a posture of medical leadership in a climate of change, not only within the AMA but at all levels down to the local societies. Dr. Wilbur emphasized five areas for urgent action: maintaining a high quality of health care, holding the line on expanding costs, developing reasonable and realistic public expectation, achieving closer unity within the profession and constructive liaison with other groups, and finally providing the planning and guidance for orderly change.

The House of Delegates received for referral to its reference committees 94 items of business. Each item was studied in depth by one of nine reference committees before final action.

Among the actions of the House of Delegates was adoption of a by-law reaffirming non-discrimination in Medical Society membership. An added amendment established a penalty mechanism for violation of this by-law by a constituent society upon review and recommendation of the AMA Judicial Council. This latter item was opposed by the North Carolina delegation and others on the premise that it represents, for the first time, departure from the long established policy that the chain of authority derives from the constituent societies and not from the national organization.

The House adopted a Board of Trustees report stating certain objectives with respect to osteopaths: To "assure provision of the best possible health care to the American people; make available to students and graduates in osteopathy, education of the same

high standards as prevail in undergraduate, graduate and continuing education programs in medicine; provide avenues whereby qualified osteopaths may be assimilated into the main stream of medicine." Published statements of some leaders in osteopathic education appear to reject these objectives and seem to pose hurdles of considerable magnitude.

The House adopted a statement on heart transplantation recognizing medical, ethical and legal facts, and establishing guidelines including the following excerpt with regard to the donor. "The cause of death must be evident and of an irreversible type. The fact of death must be established by adequate, current and acceptable scientific evidence in the opinion of the physicians making the determination. The determination of death in organ donors must be made by no less than two physicians not associated with the surgical team performing the transplant." The 1969 North Carolina General Assembly will likely be called upon to consider a statute covering organ transplantation. The AMA has urged state medical associations through liaison with state bar associations to support adoption of appropriate legislation.

In the realm of health care financing, the House called for federal legislation to provide income tax credits for health insurance premiums; immediate and ongoing studies of health care costs; the promotion of voluntary systems of health insurance; clear definition of services covered in "paid in full" programs to prevent public misunderstanding; re-installment of contracts cancelled or converted for individuals over age 65 and eligible for medicare; and reaffirmed the AMA's support of the concept of voluntary health insurance.

Endorsement was given to a proposal that would provide recognition for family physicians through approval of a primary specialty board for family practice, a project of the American Academy of General Practice and the AMA Section on General Practice.

Attention was given to the need for county and state medical societies to become involved in recruitment of qualified physicians,

cations equally or more expensive, yet physicians rarely get the patient's approval before prescribing what they think is best—an expensive course of antibiotics or steroids, for example. RhoGam may not be covered by insurance, and it is prophylactic rather than curative—but are these valid considerations for limiting its use? Perhaps physicians will have to find ways of counteracting the contraceptive action of discussing price at the same time that they discuss indications; surely preventive medicine will always occupy a higher place in their hopes than curative medicine.

Bulletin Board

Coming Meetings

Greensboro Academy of Medicine Annual Symposium—Jefferson Standard Country Club, Greensboro, March 29.

American Industrial Health Conference—Shamrock Hilton Hotel, Houston, Texas, April 21-24.

Medical Society of the State of North Carolina, 115th Annual Session, Pinehurst, May 18-21.

NEWS NOTES FROM THE UNIVERSITY OF NORTH CAROLINA SCHOOL OF MEDICINE

Dr. Louis G. Welt of the University of North Carolina faculty chaired the National Kidney Foundation's medical forum in November at the 1968 annual meeting held in Washington.

Dr. Welt is professor and chairman of the UNC Department of Medicine and is chairman of the National Kidney Foundation's Scientific Advisory Board.

Dr. Carl W. Gottschalk, professor of medicine and physiology at UNC and chairman of the national Committee on Chronic Kidney Disease, reported on the work of his blue ribbon committee and the resulting goals and objectives of the National Kidney Foundation.

* * *

Dr. John K. Spitznagel, professor of bacteriology and associate professor of medicine at UNC, delivered the last lecture of the 1968 Medical Sciences Lecture Series at the N. C. Memorial Hospital in November.

Dr. Spitznagel discussed "Lysosomes"—little inclusions in most cells which are filled with enzymes that can cause the breakdown of the cell. It is known that the cell carries with it the seeds of its own destruction, and it is thought that the enzymes in lysosomes may be the factor that keeps it from doing so. There is some evidence that lysosomes may also be instrumental in causing fevers as well as interacting with the blood clotting system.

A University of North Carolina pharmacologist says parents faced with questions concerning use of marijuana can give their sons and daughters a definite answer.

Dr. Louis S. Harris put it this way:

"Marihuana is illegal. It doesn't make any difference what the penalties are. If you're caught, something is going on your record.

"And, as you 'fill out the forms' all through your later years, there's that question: 'Have you ever been arrested for anything other than a motor vehicle violation?'"

"You're going to have to say yes. And that is going to close doors, many doors, and affect your whole future," he said.

"I don't think this has been pointed out strongly enough to young people," added Dr. Harris.

Dr. Harris, an associate professor of pharmacology in the UNC School of Medicine, is now engaged in research in the drug.

* * *

Workshops in the control and diagnosis of several digestive diseases highlighted the 12th annual University of North Carolina School of Medicine symposium here in November.

The symposium, titled "The Management of Digestive Diseases," was sponsored by the Department of Continuation Education. It was open to all registered physicians in North Carolina and bordering states.

* * *

North Carolina general practitioners and the general public learned more about "The Troubled Adolescent" at a conference held here in November.

The conference, sponsored by the Department of Psychiatry of the University of North Carolina School of Medicine, was designed for continuing education for non-psychiatrist physicians within the state. A highlight of the conference was a public speech by Dr. L. Joylan West, chairman of the Department of Psychiatry at the University of Oklahoma.

The theme of his speech was "Maturation, Conformity, and Rebellion" which dealt with problems adolescents have in adjusting to an adult society.

* * *

Coroners and medical examiners from all over North Carolina met at the Institute of Government of the University of North Carolina in November.

It was the first time the community medical examiners and coroners had met since North Carolina hired its first full-time statewide medical examiner, Dr. R. Page Hudson, formerly of Richmond, Va.

Dr. Hudson, whose headquarters is in Chapel Hill, spoke twice on the program. He lectured on "Death Associated with Alcohol" and also on "Implementation of the Medical Examiner System in North Carolina."

* * *

A Duke University professor delivered the seventh Medical Sciences lecture at the N. C. Memorial Hospital clinic auditorium here in November.

Dr. Bernard Amos, James B. Duke professor of

Immunology and Experimental Surgery, discussed "Transplantation Antigens" at the weekly series.

A native of England, Dr. Amos received his degrees from Guy's Hospital, London.

A Columbia University psychiatrist who has consulted with student activists before, during and after the disruptions and violence in conflicts last year told general practitioners studying "Troubled Youth" at the University of North Carolina that rebellious young men and women yearn for adult approval and forgiveness—even in the midst of their destructive acts.

Dr. Robert Michels of the Columbia College of Physicians and Surgeons said students who seized several buildings and occupied the President's office and locked up deans "were surprised when they found that the faculty would not agree to grant them amnesty."

"They had thought that the faculty, like parents, would pardon what they had done," said Dr. Michels. "They wanted the faculty to say 'We forgive you'. What the students wanted was to be loved. They wanted to be able to go home again and have milk and eat crackers—after the revolution."

* * *

A University of North Carolina pharmacologist was featured on a radio panel discussion of "A New Side of Marihuana" in November over Raleigh Station WLLE.

Dr. Louis S. Harris, associate professor of pharmacology in the NC School of Medicine, was a member of the panel, which was arranged by the American Chemical Society and was taped for its educational radio program, "Men and Molecules."

The program was taped at Arthur D. Little Inc., Cambridge, Mass. and other participants are members of the staff there. UNC pharmacologists have been working with the Cambridge scientists on a cooperative project concerning marihuana.

* * *

The appointment of Harold P. Coston as acting director of North Carolina Memorial Hospital was announced in November by University of North Carolina officials.

The announcement came from the office of UNC Medical School Dean Isaac M. Taylor.

Dean Taylor had this to say about the appointment: "We are fortunate that Mr. Coston has consented to assume the duties of acting director of the North Carolina Memorial Hospital. Dr. Coston, 42 years old, is a native of Winston-Salem and a graduate of Wake Forest University. He received the degree of master of public health (hospital administration) from the School of Hygiene and Public Health of Johns Hopkins University in 1952. Prior to coming to Chapel Hill in 1966 to join the Department of Hospital Administration, Mr. Coston was administrator of hospitals in Baltimore, Maryland; Cambridge, Maryland; and Hannibal, Missouri, a total of 14 years of administrative experience.

"Mr. Coston takes over the duties of Mr. William L. Ivey, who has relinquished the directorship of the North Carolina Memorial Hospital, a position he has held for the past two years, in order to assume duties

in the Department of Hospital Administration of the UNC School of Medicine.

* * *

The Medical Foundation of North Carolina, Incorporated, has acquired a second aircraft.

In January 1968, the Medical Foundation received a gift of a twin-engine, six-passenger airplane, given with the intention that it would serve as a transport for medical faculty and consultants to the outreaching communities of the State.

The necessity of these communities to obtain University consultants has long existed and obvious limitations were imposed by dependency on automobile service.

Over the last ten months the Medical Foundation's airplane flew some 86,000 passenger miles in order to enable more than 100 medical faculty and University consultants to work on a local level in dozens of communities facing problems in which outside help was requisite.

Lt. Col. E. D. Provancha joined the UNC Medical School's Division of Education and Research in Community Medical Care from U. S. Air Force Headquarters in July, 1968, to serve as director of transportation and as chief pilot for the Medical School.

The Medical Foundation's two airplanes have not only created opportunities for dozens of communities to obtain rapid and frequent consultative assistance, but they have also enabled many various Medical School faculty members to conserve a total of 230 full days which would have been consumed in automobile travel.

NEWS NOTES FROM THE

DUKE UNIVERSITY MEDICAL CENTER

Dr. Barnes Woodhall, associate provost for medical affairs at Duke University, has been promoted to fill a newly created post as special assistant to the president of the University effective Jan. 15.

His current title and duties as associate provost for medical affairs has been assumed by Dr. William G. Anlyan.

The promotions were announced by President Douglas M. Knight who said:

"Dr. Woodhall's unique understanding of the many purposes and needs of a modern university are a tremendous asset to Duke, and in his new position he will be free to work directly with a broad range of problems, including those of university development. We are truly fortunate that he is willing to accept such a responsibility while continuing his activity in the field of neurosurgery."

Dr. Woodhall, professor of neurosurgery, was the second dean of the Duke Medical School, having succeeded Dr. Wilburt C. Davison in the post in 1960. At the same time, he was named vice provost. He then relinquished the deanship to Dr. Anlyan in 1964 and was promoted to associate provost for medical affairs in 1967. That post carries the responsibility for super-

vision of the entire Medical Center, including the Schools of Medicine and Nursing and a multidisciplinary research program.

* * *

A Duke University Medical Center professor of pediatrics has been named president of the American Association of Poison Control Centers at the group's annual meeting in Chicago.

Dr. Jay M. Arena, director of Duke's Poison Control Center, will direct the 500-member organization's program in the field of poison prevention and treatment. The association works to educate citizens about the problems and what may be done about them in the area of poison control in the United States.

The membership, made up of physicians, toxicologists, and pharmacologists, along with personnel from drug and chemical industries, aids research to design safety closures and containers for potentially dangerous drugs and chemicals. Projects related to poison treatment include presentations of the most modern antidotes.

Dr. Arena, as president of the organization, will chair the first International Congress of Poison Control Centers scheduled to be held in New York City next June.

* * *

Duke University's chief of urology was named "Urologist of the Year" by the Buffalo Urological Society in ceremonies held in December.

The award was presented to Dr. James F. Glenn on his return from an 18-day medical mission to South Vietnam for the American Medical Association and the U. S. Department of State.

Dr. Glenn went to Saigon Nov. 17 to make a feasibility study of a proposed program designed to upgrade medical education in South Vietnam. The program envisions teaching visits by consulting physicians from the United States to hospitals in South Vietnam and the University of Saigon Medical School.

Selected medical graduates and faculty members from South Vietnam also would visit medical centers in this country to observe methods of clinical practice, research, teaching and administration.

* * *

Duke University Medical Center added a \$7.1 million research building to its health facilities with the dedication of the Nanaline H. Duke Medical Science Building Dec. 9.

The structure, begun in May, 1966, houses research programs of the departments of biochemistry-genetics under Dr. Phillip Handler, chairman, and physiology-pharmacology under Dr. Daniel C. Tosteson, chairman.

The new facility honors the late Nanaline H. Duke, wife of James Buchanan Duke. In 1924 James B. Duke established the Duke Endowment and made the university one of the principal objects of his trust fund.

Constructed of precast concrete panels and Duke's traditional Hillsborough stone, the building has four laboratory towers, an administrative wing, and a central research area.

* * *

The Gerontological Society of the United States has

presented its first annual Kleemeier Award to a Duke University Medical Center professor.

Dr. Ewald W. Busse, professor and chairman of the Duke Department of Psychiatry, received the award for his outstanding contributions to research in the field of aging at the society's 1967 meeting in Denver recently.

At the presentation ceremonies, Dr. Busse delivered an invitational lecture entitled "A Temporal Odyssey" and received an engraved Steuben star crystal.

The selection of Dr. Busse was made by the Research Committee which administers the award, named for the late Dr. Robert W. Kleemeier. Dr. Kleemier was a past president of the Gerontological Society and made significant contributions to basic research in the aging process.

Dr. Busse came to Duke in 1953. He has served as J. P. Gibbons Professor of Psychiatry since 1965. He has been director of the Duke University Center for the Study of Aging since 1957. Prior to coming to Duke, he was professor of psychiatry at the University of Colorado School of Medicine.

The first Kleemeier Award recipient received the 1967 Edward B. Allen Award from the American Geriatrics Society and the Edward A. Strecker Award from the Psychiatric Institute of Pennsylvania Hospital also in 1967.

* * *

Physical therapy at Duke University Medical Center celebrated its 25th anniversary last month with a two-day program including graduation exercises for the 1968 class.

Miss Helen Kaiser, founder of the Duke PT program, was honored at an alumni reunion dinner for her development of physical therapy at Duke and her contributions to the profession. Miss Kaiser retired as director of the school this fall to return to her academic position as associate professor of physical therapy.

The Duke physical therapy program was begun in 1943 because of the shortage of PT's urgently needed to aid men injured in the war. Miss Kaiser came to Duke to establish the program from a supervisory position in physical therapy at Mt. Sinai Hospital in Cleveland, Ohio.

The present Duke curriculum, offered only at the graduate level since 1956, lasts 15 months. Sixteen students are accepted for training each year. In addition, a new two-year program, designed to allow students to obtain a PT certificate along with a master's degree in some field of basic medical science, is being offered through the school. Plans call for expansion of class enrollment to 24 as soon as laboratory space becomes available.

* * *

Additional financial support from friends and graduates of the Duke University Medical Center will be sought through an expanded program announced recently by the Office of Alumni Affairs.

The appointments of two members to the alumni staff—one to handle a program geared to the univer-

sity's medical complex—were announced by Roger L. Marshall, director of alumni affairs at Duke.

Charles M. Smith, a 29-year-old native of Washington, N. C., will serve as associate alumni secretary for medical affairs and will maintain an office on the Medical Center.

Focusing on the organization of the area campaigns for the Duke Loyalty Fund will be John L. Kline of Siler City.

Smith holds A.B. and B.R. degrees from Duke and formerly was employed in the financial assistance office. He will coordinate programs of the Medical Alumni Association and the medical phase of the Loyalty Fund.

In addition, he will work with development of a new Davison Club Program which is designed to produce annual gifts of \$1,000 or more from friends of the center. Funds raised from this program will be used for purposes designated by the Dean of the Medical Center.

* * *

The rapidly growing field of allied health professions will take a giant step toward providing more complete medical care next fall when Duke University and Elon College begin an affiliated program for a bachelor of science degree in radiologic technology. Graduates of the new four-year curriculum will be qualified as practicing technologists and as instructors and administrators with schools of radiologic technology.

Dr. Richard G. Lester, chairman of the Duke Department of Radiology, and Dean Fletcher Moore of Elon College announced the plan. They said it is aimed at resolving the acute shortage of administrative radiologic technologists.

The new four-year program enables a student to take his first two years of college work in liberal arts at Elon. Courses include mathematics, psychology, physics, anatomy and embryology, in addition to general arts and social science subjects.

The following two calendar years, spent at Duke Medical Center, provide clinical training in the use of radiation equipment and advanced courses in basic medical sciences. Students learn exposure and development techniques along with patient positioning, medical terminology, professional ethics and a variety of related topics.

A student completing the program receives a B.S. degree from Elon College. Final examinations of the sessions at Duke will include an examination given by the American Registry of Radiologic Technologists for certification.

Duke Medical Center presently offers a two-year certificate program in radiologic technology for high school graduates. About 60% of the students currently enrolled, however, have attended junior college. Duke also provides one-year advanced programs in vascular radiography and neuroradiography for technologists who want to specialize after certification. Both programs will continue together with the B.S. degree.

NEWS NOTES FROM THE BOWMAN GRAY SCHOOL OF MEDICINE OF WAKE FOREST UNIVERSITY

Dr. Katherine H. Anderson, president of the Forsyth County Medical Society, has been appointed to the full-time faculty of the Bowman Gray School of Medicine as associate professor of pediatrics.

She will direct outpatient services of the Department of Pediatrics and will supervise a newly developed training program for pediatric assistants.

Dr. Anderson, who holds the B.S. degree from the Carnegie Institute of Technology and the M.D. degree from Cornell University Medical College, has been in the private practice of pediatrics in Winston-Salem for the past 25 years, during which time she served on the medical school's part-time faculty.

* * *

The Bowman Gray School of Medicine and North Carolina Baptist Hospital recently received grants totaling \$2.5 million to support the medical center's \$30-million expansion program.

The North Carolina Medical Care Commission granted \$2 million to Baptist Hospital to be used in the construction of a 16-story hospital and clinics building. Construction of this unit, which will increase the hospital's bed capacity to 709, will begin in January.

A \$500,000 grant was made to the medical school by the Z. Smith Reynolds Foundation. The foundation previously awarded grants totaling \$1.5 million to the medical center for use in the building program.

Major elements of the medical center building program include a 122,000-square-foot addition to the medical school and a 400-seat auditorium, both of which will be completed by September, 1969; a new power plant, which is nearing completion; and the hospital and clinics building, scheduled for completion in 1972.

* * *

Dr. Eben Alexander, Jr., professor of neurosurgery, was visiting professor Nov. 21-22 at Northwestern University School of Medicine, where he spoke on "Surgical Treatment of Fracture of the Cervical Spine."

* * *

Dr. Richard T. Myers, professor and chairman of the Department of Surgery, delivered the first E. J. Dunning Memorial Lecture Nov. 26 at Charlotte Memorial Hospital. He spoke on "History of Peptic Ulcer Surgery."

* * *

Two administrative officers of the Bowman Gray School of Medicine were elected to offices in the Association of American Colleges at the organization's 79th annual meeting in Houston, Texas.

Dr. Robert L. Tuttle, associate dean, was named vice chairman of the National Group on Student Affairs. Harry O. Parker, medical school controller, was elected vice chairman of the association's Business Officers' Section.

Dr. Coy C. Carpenter, vice president emeritus for

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Weekly Benefits	Under 30	30 - 39	40 - 49	50 - 59	60 - 69
\$250.00	\$124.50	\$142.00	\$204.50	\$284.50	\$352.00
200.00	100.50	114.50	164.50	228.50	282.50
150.00	76.50	87.00	124.50	172.50	213.00
100.00	52.50	59.50	84.50	116.50	143.50
Plan L-65		Maximum Accident Benefits		Maximum Sickness Benefits	
		Lifetime		To age 65	
SEMI-ANNUAL RATES					
Weekly Benefits	Under 30	30 - 39	40 - 49	50 - 59	60 - 69
\$250.00	\$154.50	\$177.00	\$242.00	\$324.50	\$352.00
200.00	124.50	142.50	194.50	260.50	282.50
150.00	94.50	108.00	147.00	196.50	213.00
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medical affairs, was elected to emeritus membership in the Association of American Medical Colleges. He was one of four persons honored as "men who have distinguished themselves in dealing with problems of and in contributing to the progress of medical education."

* * *

Dr. Courtland H. Davis, Jr., professor of neurosurgery, has been elected to honorary membership in the Society of British Neurological Surgeons. Fewer than 20 American neurosurgeons have been elected during the organization's 42-year existence and Dr. Davis is the first from North Carolina to be so honored.

He is president-elect of the Neurological Society of America.

* * *

Dr. A. Sherrill Hudspeth, assistant professor of surgery, participated in a recent meeting of the Southern Thoracic Association in San Juan, Puerto Rico. He presented a paper on Prevention and Management of Ventricular Arrhythmias Following Open Heart Operations."

* * *

Dr. Donald M. Hayes, associate professor of medicine, has been named to the board of directors and the executive committee of the North Carolina Division, American Cancer Society.

* * *

Dr. James F. Martin, professor of radiology, recently was elected secretary of the North Carolina Chapter, American College of Radiology.

* * *

Dr. Robert P. Crouch, an Asheville surgeon, was installed as president of the Bowman Gray Medical Alumni Association Nov. 8 at the annual meeting of the association. He succeeds Dr. William H. Freeman of Albemarle.

Dr. Joseph B. Alexander of Lumberton was elected president-elect and Dr. Jean Bailey Brooks of Greensboro was elected to a third term as secretary-treasurer.

Elected to the alumni council were Dr. L. Gordon Clarke of Eden, Dr. Giles L. Cloninger, Jr. of Hamlet, Dr. George W. Fisher, Jr. of Fayetteville, Dr. George D. Kimberly of Bakersville, and Dr. John W. Nance of Clinton.

* * *

Dr. I. Meschan, professor and chairman of the Department of Radiology, presented a lecture on "Physiology of the Urinary Tract, Consideration for Radiography" Nov. 29 at Georgetown University Hospital.

* * *

Three members of the Bowman Gray faculty participated in the American Heart Association's Council on Arteriosclerosis Nov. 18-21 in Miami Beach. Dr. Hugh B. Lofland, Jr., professor of pathology, presented a paper on "Individuality in the Response of Primates to Cholesterol-Containing Diets." Dr. Billy C. Bullock, assistant professor of laboratory animal medicine, spoke on "Effect of Age and Diet on Atherosclerosis

in Cebus Albifrons." Dr. Thomas B. Clarkson, Jr., professor and director of the Department of Laboratory Animal Medicine, was elected to the program committee.

* * *

Dr. R. Winston Roberts, professor of ophthalmology, lectured on "Early Glaucoma" at a recent meeting of the American Academy of Ophthalmology and Otolaryngology in Chicago.

* * *

Dr. Clark E. Vincent, professor of sociology and director of the Behavioral Sciences Center, presented a series of lectures on "Delivery of Comprehensive Health Services" during November at the Medical College of Georgia. He also spoke on "Family Members as Paramedical Personnel" at a District VI Nurses Conference of the American College of Obstetricians and Gynecologists in Chicago.

* * *

Dr. David R. Mace, professor of sociology, discussed "Contemporary Marriage: The Viewpoint of a Behavioral Scientist" before the Theological Foundation for Sex, Marriage and The Family, in Chicago Nov. 12. He also participated in a one-day Institute on Marriage Counseling in Wilmington, where he spoke on "Professional Marriage Counseling: A New Social and Personal Service" and "Men, Women and Marriage."

* * *

NORTH CAROLINA HEART ASSOCIATION

The conquest of atherosclerosis has been named by the American Heart Association as its number one project.

Over eight thousand physicians and laymen, meeting recently in Miami at the American Heart Association Annual Meeting, discussed a broad program of attack on atherosclerosis. The Association feels that the first line of defense against heart attack and stroke is control of atherosclerosis.

As a first step in the attack, the Heart Association is instituting a crash program in diet information for the American people. The Association feels that a reduction in the consumption of animal fats in the daily diet of every American could well reduce the deposits of animal fats within the arteries, thus decreasing the chances of heart attack and other cardiovascular diseases.

The North Carolina Heart Association has available a booklet, "Recipes for Fat-Controlled Low Cholesterol Meals," which describes in detail those foods which are high in animal fats and those which are comprised primarily of vegetable fats. Anyone desiring a copy of this pamphlet may obtain one by writing to the North Carolina Heart Association, 1 Heart Circle, Chapel Hill, North Carolina.

* * *

Dr. Marvin M. McCall, chief cardiologist at Charlotte Memorial Hospital, has been designated as the head of the faculty for the Regional CPR Training Center for the North Carolina Heart Association—Regional Medical Program Cardiopulmonary Resuscita-

tion Project. Assisting Dr. McCall will be Dr. Robert B. Payne, also of Charlotte Memorial Hospital, and Dr. George B. Irons, Jr. of the same institution. These three physicians will comprise the faculty of the CPR Training Center and will undergo special postgraduate training at the University of Pittsburgh School of Medicine.

Dr. McCall has considerable experience in the field of cardiopulmonary resuscitation and has contributed a text book section on this subject. Drs. McCall, Payne, and Irons are experienced instructors in CPR.

After the completion of their postgraduate training under the sponsorship of the American Heart Association, the faculty members will be charged with the responsibility of planning and directing courses for physician instructors in the North Carolina Heart Association—Regional Medical Program Cardiopulmonary Resuscitation Project. Under this plan a physician from the community hospitals in North Carolina will undergo training at Charlotte Memorial Hospital and then return to his individual hospital and proceed to train members of that hospital's staff and other allied medical personnel in the techniques of cardiopulmonary resuscitation.

NORTH CAROLINA MENTAL HEALTH COMMISSION

North Carolina's mental health leaders were complimented recently by a visiting official from the National Institute of Mental Health.

Dr. Lucy Ozarin, a psychiatrist who spoke here at a study course for southeastern mental health leaders, had high praise for Dr. Eugene Hargrove, N. C. Mental Health Commissioner, and his staff.

"They really are working with the local communities," she said in an interview. "And there's a real movement here to incorporate new knowledge into these programs."

Dr. Ozarin has the lengthy title of program development officer, Division of Mental Health Service Program, NIMH.

She was a key speaker for the second "Mental Health Centers Planning and Operations Course" sponsored by the Community Psychiatry Division of the Department of Psychiatry, University of North Carolina School of Medicine, and the N. C. Department of Mental Health.

NORTH CAROLINA BLUE CROSS AND BLUE SHIELD, INC.

In cooperation with the North Carolina Department of Motor Vehicles, the Auxiliary to the Medical Society of the State of North Carolina, the Trauma Committee of the Medical Society of the State of North Carolina, the North Carolina Hospital Association, and the North Carolina Committee on Patient Care, North Carolina Blue Cross and Blue Shield, Inc. is sponsoring an educational campaign to encourage motorists to complete the health information sticker on the back of their drivers' licenses so this vital information will

be immediately available to policemen, ambulance attendants, hospital emergency room staffs, and physicians in case of emergency.

North Carolina is the only state in the nation which has a medical questions blank on the back of drivers' licenses. According to John K. Lockhart of Mt. Airy, chairman of the N. C. Committee on Patient Care, "This is a very progressive step—one which can literally save the lives of our people. However, this very forward-thinking innovation has proved less effective than it should be simply because many people ignore the opportunity to have this information immediately at hand in an emergency, by failing to fill in and attach the sticker to their drivers' licenses. Often the stickers are lost, ignored, or absent-mindedly discarded and never affixed to the license. We hope this new educational program will help to remedy this situation," Mr. Lockhart said.

Posters were placed this month in all the 210 drivers' license examining stations operated by the Department of Motor Vehicles throughout North Carolina. The posters call attention to the importance of the medical information sticker. They urge motorists to (1) stick them on their drivers' licenses, and (2) fill them out, with the help of their family doctor.

The posters have also been placed in hospital emergency departments; and cards carrying the same information are being distributed by the Medical Society Auxiliary to North Carolina physicians for display in their offices.

MENTAL HEALTH COMMITTEE

The Mental Health Committee of the Medical Society of the State of North Carolina is prepared to supply to medical groups, without expense, timely programs on a wide variety of topics that are of interest to general practitioners and specialists alike.

Medical societies and other groups can obtain the programs by selecting a topic from the available list and completing the special program request form, and mailing it to Miss Kay Zeigler, P. O. Box 90, 203 Capital Club Building, Raleigh, N. C. 27602.

Topics are as follows:

General

Psychiatric Emergencies
Management of Functional Conditions
Office Psychiatry for the Non-Psychiatrist Physician
Shop Talk on the Suicidal Patient
Drugs and Psychiatry
Community Mental Health and the Physician
Management of Grief and Depression
Mental Illness and the Lawbreaker

Mental Retardation And Children Services

The Physician, the Community and Mental Retardation
New Developments in Mental Retardation
Counseling Before and After Marriage
Childhood Behavior Problems

The Problem Child in School
The Physician and Sex Education

Alcoholism

Treatment of Alcoholism by the Family Physician
Developing Community Programs on Alcoholism
Management of Drug Abuse by the Physician

Medicine and Religion

Conflicts Between Medicine and Religion
Management of the Terminal Patient
The Clergy and the Healing Team

SOUTHERN MEDICAL ASSOCIATION

Donald F. Marion, M.D., Miami, Florida, was installed as president of the Southern Medical Association at its recent annual meeting held in New Orleans, La. He will serve as president until November 1969.

Other officers of the Association are J. Leonard Goldner, M.D., Durham, N. C., president-elect; Albert C. Esposito, M.D., Huntington, W. Va., first vice-president; and J. Ralph Meier, M.D., New Orleans, second vice-president.

Dr. Marion received his B.S. and M.D. degrees from Duke University School of Medicine. A well-known specialist in the field of gastroenterology, he is currently a member of the attending staff of Jackson Memorial Hospital, Miami, and Doctors Hospital, Coral Gables, as well as one of the consulting staff at St. Francis, Miami Beach, and Victoria Hospital in Miami. He also holds the position of clinical professor of medicine at the University of Miami School of Medicine.

AMERICAN COLLEGE OF SURGEONS

The American College of Surgeons will hold the second of three 1969 Sectional meetings in Louisville, Feb. 24-26. The meeting is open to all doctors of medicine. This is the first College meeting in Louisville since 1960. Headquarters will be the Brown Hotel.

Dr. Woodrow L. Pickhardt, Chicago, is in charge of the scientific programs for Sectional meetings. Dr. John Paul North, Chicago, is director of the College.

ANNOUNCEMENT

The Medical Genetics Section of the Department of Preventive Medicine and Public Health at Creighton University School of Medicine, Omaha, Nebraska, is interested in the study of patients showing an increased incidence of any histologic variety of cancer in their families. Of particular interest to us is the cancer family syndrome, characterized by: 1) increased frequency of adenocarcinoma of all sites, particularly of the colon and endometrium, 2) early age at onset of cancer, 3) increased occurrences of multiple primary malignant neoplasms, and 4) autosomal dominant inheritance. To date, we have investigated six

families fulfilling all of the above criteria (Lynch, H. T., and Krush, A. J.: Heredity and Adenocarcinoma of the Colon, *Gastroenterology* 53:517-527, 1967), and have corresponded with physicians in Europe who have described two separate and non-related families which also fulfill the above criteria.

Physicians with patients known to have a familial cancer background, may write to Henry T. Lynch, M.D., Associate Professor and Chairman, Department of Preventive Medicine and Public Health, Creighton University School of Medicine, 657 North 27th Street, Omaha, Nebraska 68131.

We invite your cooperation in our studies which will include a genealogical and medical investigation of the entire kindred in each case. All information obtained will be shared with family physicians in order to facilitate cancer control.

NATIONAL EASTER SEAL SOCIETY

To help meet the growing need for trained physical and occupational therapists, Kappa Delta Phi sorority and the National Easter Seal Society have announced the availability of a limited number of supplemental aid scholarships for students continuing their training in those fields during the 1969 academic year.

In order to be eligible for the funds, applicants must be United States citizens enrolled or accepted in a certificate course or in the senior year or clinical training period of a degree course in physical or occupational therapy at a school approved for training by the Council on Medical Education of the American Medical Association.

Application forms are available from the Scholarship Coordinator, National Easter Seal Society for Crippled Children and Adults, 2023 West Ogden Avenue, Chicago, Illinois 60612.

The completed application form and all supplemental material must be received by May 15 in order to receive consideration by the Scholarship Review Committee.

INDUSTRIAL MEDICAL ASSOCIATION

A survey of the literature in the field of occupational health has resulted in the publication of the second edition of the "Occupational Health Bookshelf," a reference list of more than 250 books selected on the basis of their value to practitioners in the broad field of health in relation to occupation.

The list, which was compiled by a committee of the Industrial Medical Association under the chairmanship of J. S. Fellon, M.D., is an enlargement of the first edition which was published in 1963.

Copies of the Bookshelf are available at 40c each from the Industrial Medical Association, 55 East Washington, Chicago, Ill. 60662. A publication order form listing more than 70 IMA publications and reprints is also available.

AMERICAN ACADEMY OF DERMATOLOGY

Walter C. Lobitz, Jr., M.D., Portland, Ore., was elected president of the American Academy of Dermatology at the 27th Annual Meeting of the organization.

Among those selected to serve three-year terms on the Board of Directors of the American Academy of Dermatology was J. LaMar Callaway, M.D. of Durham, professor of dermatology, Duke University Medical Center.

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

A new National Cancer Institute-Veterans Administration Medical Oncology Service has been established at the Washington, D. C. Veterans Administration Hospital. The Service will function both as a part of the Medicine Branch of the National Cancer Institute, National Institutes of Health and the Washington, D. C. Veterans Administration Hospital Medical Services.

This collaboration is viewed by both the National Cancer Institute and the Veterans Administration as an excellent example of cooperative efforts between agencies for the enhancement of both programs and furthering of mutual aims including the best of patient care.

Dr. Kenneth M. Endicott, Institute Director, said the new Service reflects the growing importance of drugs in cancer treatment. The unit will serve as a focal point for the Institute's expanding research program on lung cancer and certain other forms of cancer. Dr. Oleg S. Selawry, formerly Chief of Chemotherapy at St. Jude's Children's Research Hospital, Memphis, Tennessee, will head the new Service.

BLUE CROSS AND BLUE SHIELD, INC.

North Carolina Blue Cross and Blue Shield will join wholeheartedly in a nationwide effort by Blue Cross to reduce the cost of health care through continuing support of comprehensive health planning.

John Alexander McMahon, president of North Carolina Blue Cross and Blue Shield, Inc., said his organization will give strong support to a seven-point program to stem the tide of rising medical costs announced last month by Walter J. McNerney, president of the National Blue Cross Association in Chicago.

Speaking for the giant nonprofit Blue Cross system, McNerney outlined a sweeping seven-point program which, among other things, urged planning in every health institution, the establishment of "a regional or areawide health planning agency" in every section of the country, and specified that "major allocations of resources for health care purposes should be made subject to approval of some publicly accountable body at the state level."

McMahon made this comment on why Blue Cross is supporting health planning: "We support the con-

cept because we feel that a comprehensive approach is vital to the efficient delivery of quality health services to the public at reasonable cost. We want to encourage planning at the state and local level because we are convinced that the closer the planning process is to the community the more relevant and responsive it will be. This is where the health care delivery system is located—at the community level. This is where the resources can best be used."

North Carolina Blue Cross and Blue Shield has been giving financial support to organized health planning programs throughout the state on a continuing basis.

The Month in Washington

The incoming Administration work on a health program was started with President-elect Richard Nixon's appointment of John Dunlop, a Harvard University professor, to head a special task force.

Dunlop, 54, is a prominent economist and an expert in the manpower field. He has been a frequent adviser to the federal government since 1948.

In a letter to employees of the Department of Health, Education and Welfare, Secretary Wilbur J. Cohen, who will return to teaching at the University of Michigan, listed 13 health goals for the 1970s. He previously had said that his teaching position would leave him time to work for new and expanded health programs.

Most of the goals are non-controversial, and Cohen did not elaborate on details of implementation where controversy arises.

* * *

Developments in the drug field include starts on tests of an old drug in treatment of pneumonia and a new one for Parkinson's disease.

The National Institutes of Health started a widespread test of a polyvalent pneumococcal vaccine that was discarded 20 years ago with the entrance of antibiotics. Edwin M. Lerner, M.D., coordinator of the test program, said it had been demonstrated that persons die of pneumonia because of early stage damage and that antibiotics have not been a cure-all. The old vaccine, manufactured by E. R. Squibb and Sons, was licensed and found effective in 1948, but was taken off the market in 1952 because of lack of sales.

The Public Health Service announced a program to test an experimental drug in treatment of Parkinson's disease. Robert Q. Marston, M.D., Director of the National Institutes of Health said the drug, L-DOPA, may help "up to 75% of patients." But he cautioned it has "serious and unpleasant side effects" which must be carefully checked.

Regional Medical program, a majority involving continuing education of physicians, are now under way in 24 areas, with 261 separate projects being carried out, according to a government report.

Thirty-one regions have not yet embarked on specific programs.

States and regions with the most listed projects to date are Tennessee (mid-South), 27; Missouri, 25; Texas, 24; South Carolina, 16; Intermountain (Utah, Wyoming, Montana, Idaho, Nevada), 16; Michigan, 15; Georgia, 14, Kansas, 14; Washington-Alaska, 4; Albany (N. Y.), 10; Memphis (Tenn.), 10; California, 9; Rochester, (N. Y.), 9; and, Oregon, 7.

* * *

The nation's largest mental institution, Saint Elizabeth Hospital, Washington, D.C., will be converted to a model of modern mental health services, training, and research by the National Institute of Mental Health.

The National Center for Mental Health Services, training, and research will be headed by Sherman N. Kieffer, M.D., Assistant Surgeon General of the Public Health Service.

The new national center will have three divisions. One is the Saint Elizabeth Hospital-Division of Clinical and Community Services. In collaboration with the D.C. Department of Health, this division will operate the area D Community Mental Health Center which includes much of Southeast Washington. It will also provide active treatment, care and rehabilitation services for the beneficiaries of Saint Elizabeth Hospital.

A division of intramural training, will administer an expanded institute program to train new types of auxiliary mental

health manpower and to test new training techniques.

The third division will be responsible for the development of new approaches in clinical research.

* * *

The National Institutes of Health has asked processors of whole pooled human blood plasma to halt its interstate shipment because the substance has been causing hepatitis, an infection of the liver, in one out of 10 patients receiving transfusions. The move is expected to halt use of most such plasma of which about 300,000 pints are given annually to about 100,000 patients in the United States. The agency acted on a report issued in April by the National Research Council saying use of whole pooled plasma should be discouraged and even discontinued because of the hepatitis danger.

In Memoriam

James S. Gilliam, Jr., M.D.

It is seldom that a member of our profession is lost to the community by death at the very peak of his professional activity. Unfortunately, death claimed the life of one of our active members, Dr. James S. Gilliam, Jr., in August, 1968, and his loss will be felt greatly by the community and the profession.

A native of Alamance County, Dr. Gilliam was born June 5, 1915. He received the B.A. degree from the University of North Carolina, where he was a member of Phi Beta Kappa. After teaching school for a year, he entered the Duke University School of Medicine and was graduated in 1941. His postgraduate training included an internship at Baltimore City Hospital and residencies in urology and pathology at the University of Virginia Hospital in Charlottesville. He was a lieutenant in the Navy Medical Corps during World War II, and served from 1944 until 1946.

Dr. Gilliam and his family came to High Point in 1949. He became an active member of the High Point Memorial Hospital staff in July of that year and continued his practice in urology until his death. He was certified by the American Board of Urology in 1954, and was a member of the American Urological Association and a fellow of the American College of Surgeons, among many other professional organizations.

His outside interests were manifold. Among many other organizations, he belonged to the American Angus Association, North Carolina Farm Bureau Association, North Carolina Wildlife Association, National Rifle Association, and Tennessee Walking Horse Association. He was also active in the District work of the Boy Scouts of America.

By this communication, the staff of the High Point

Memorial Hospital and the members of the Guilford County Medical Society express their deepest sympathy to his wife and three children, Judith, James and Gerald, and also to his mother, Mrs. Lillie Kernodle Gilliam, and to his brother, Emory.

Dr. Gilliam demanded much of himself and gave unlimited attention to his patients. He will be remembered by all of us for his devotion to his profession, his excellence in the performance of his professional work, and his deep loyalty and integrity. Therefore be it

Resolved, That this communication become a record of the Staff of the High Point Memorial Hospital and of the Guilford County Medical Society, and that copies be forwarded to his widow, to his mother, and to other members of his family.

—George T. Wood, Jr., M.D.

E. Bruce Brooks, M.D.

Dr. E. Bruce Brooks, retired internist, died August 5, 1968 of injuries sustained in an automobile accident earlier that day. Born in Nashville, North Carolina, he took his undergraduate work at Duke University. He graduated from Duke University School of Medicine in 1933. His residency was served at Union Memorial Hospital and University Hospital in Baltimore, Maryland.

In 1936 Dr. Brooks came to Winston-Salem where he joined the staff of the old City Memorial Hospital. He remained on the staff there until 1961 except for six months in 1944 which were spent at the University of Sydney, Australia. Failing health forced him to retire from his full-time medical practice in 1966, but he continued to serve as a consultant to Forsyth Memorial Hospital until his death.

Dr. Brooks served in the Navy from 1924 to 1928. In 1926 he was decorated for the Nicaraguan campaign. During World War II he served with the Army's 42nd General Hospital and was discharged as a Lieutenant Colonel.

It is hereby resolved that we, the members of the Forsyth County Medical Society, express to Mrs. Brooks our respect for the memory and deeds of Dr. E. Bruce Brooks. It was a privilege for us to have known him. His faithful dedication to the medical profession will remain as an example for us all.

Joseph Monroe Walker, Jr., M.D.

WHEREAS, Dr. Joseph Monroe Walker, Jr., born in Augusta, Georgia, on January 6, 1904, the son of Joseph Monroe and Louise Griffin Walker, was called from us by his Creator on September 4, 1968; and

WHEREAS, Dr. Walker was an active practitioner of medicine in the City of Winston-Salem and Forsyth County, North Carolina, for a period of thirty years following his undergraduate training at the University of Chicago and the University of Illinois, receiving his M.D. degree in 1933, from the University of Illinois and completing his internship and residency training in surgery at the City Hospital (No. 2) and the Homer G. Phillips Hospital in St. Louis, Missouri, in 1938; and

WHEREAS, Dr. Walker was a fellow of the American College of Surgeons, member of the National Medical Association, the Medical Society of the State of North Carolina, and the Forsyth County and Twin City Medical Societies; and

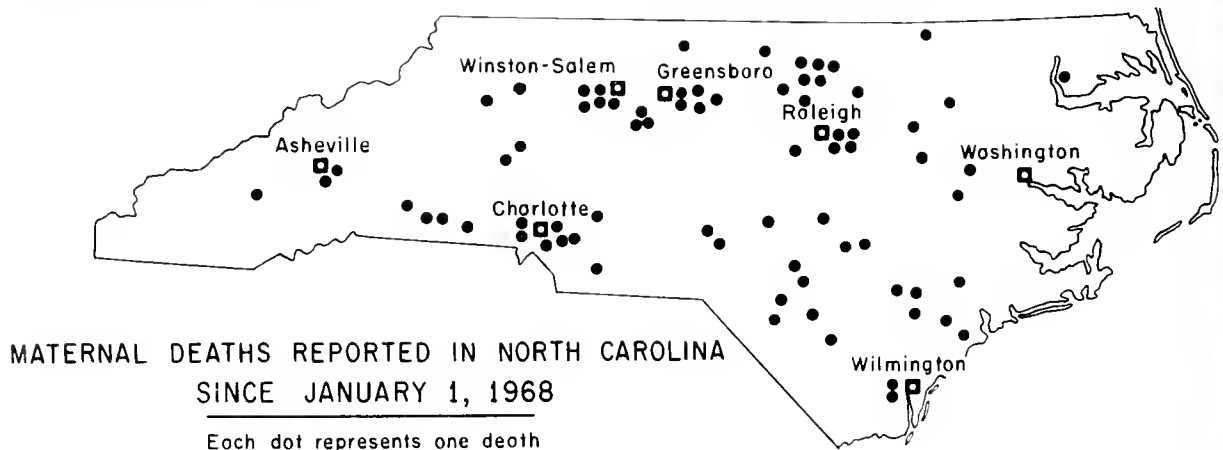
WHEREAS, Dr. Walker was chief of staff and chief of the Surgical Service at the Kate Bitting Reynolds Memorial Hospital, an institution he held dear to his heart, and within whose walls he gave unlimited time and energy to the care of charity patients and the training of young physicians and nurses; be it

Resolved, that the membership of the Forsyth County Medical Society does hereby express its deepest regret at the loss of its beloved late member and colleague and does extend its sympathy to his wife and children; and be it further

Resolved, that a copy of these resolutions be sent to his bereaved wife, to the Archives of the Medical Society of North Carolina; and that the original be entered into the records of the Forsyth County Medical Society.

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Indication—Oral contraception.

Contraindications—Thrombophlebitis, thromboembolic disorders, cerebral apoplexy or a past history of these conditions, markedly impaired liver function, known or suspected carcinoma of the breast, known or suspected estrogen-dependent neoplasia, undiagnosed abnormal genital bleeding.

Warnings—Watch for the earliest manifestations of thrombotic disorders (thrombophlebitis, cerebrovascular disorders, pulmonary embolism, retinal thrombosis); if present or suspected discontinue the drug immediately.

British studies reported in April 1968^{1,2} estimate there is a seven- to tenfold increase in mortality and morbidity due to thromboembolic diseases in women taking oral contraceptives. In these controlled retrospective studies, involving 36 reported deaths and 58 hospitalizations due to "idiopathic" thromboembolism, statistical evaluation indicated that the differences observed between users and non-users were highly significant. The conclusions reached in the studies are summarized in the table below:

Comparison of Mortality and Hospitalization Rates Due to Thromboembolic Disease in Users and Non-Users of Oral Contraceptives in Britain.

Category	Mortality Rates		Hospitalization Rates (Morbidity)
	Age 20-34	Age 35-44	Age 20-44
Users of Oral Contraceptives	1.5/100,000	3.9/100,000	47/100,000
Non-Users	0.2/100,000	0.5/100,000	5/100,000

No comparable studies are yet available in the United States. The British data, especially as they indicate the magnitude of the increased risk to the individual patient, cannot be applied directly to women in other countries in which the incidences of spontaneously occurring thromboembolic disease may differ.

Discontinue medication pending examination if there is sudden partial or complete loss of vision, or sudden onset of proptosis, diplopia or migraine. Withdraw medication if papilledema or retinal vascular lesions are found.

Since the safety of Ovulen in pregnancy has not been demonstrated, it is recommended that pregnancy be ruled out for any patient who has missed two consecutive periods before continuing the contraceptive regimen. If the patient has not adhered to the prescribed schedule the possibility of pregnancy should be considered at the first missed period.

A small fraction of the hormone agents in oral contraceptives has been identified in the milk of mothers receiving these drugs. The long-range effect to the nursing infant cannot be determined at this time.

Precautions—Pretreatment physical examination should include special reference to the breasts and pelvic organs, and a Papanicolaou smear.

Endocrine and possibly liver function tests may be affected by Ovulen. Therefore, it is recommended that such tests if abnormal be repeated after the drug has been withdrawn for two months.

Pre-existing uterine fibromyomas may increase in size under the influence of progestogen-estrogen preparations.

Because these agents may cause some degree of fluid retention, conditions which might be influenced by this factor, such as epilepsy,

migraine, asthma, cardiac or renal dysfunction, require careful observation.

In breakthrough bleeding, and all irregular vaginal bleeding, consider nonfunctional causes. Adequate diagnostic measures are indicated in undiagnosed vaginal bleeding.

Carefully observe patients with a history of psychic depression and discontinue the drug if severe depression recurs.

Any possible influence of prolonged Ovulen therapy on pituitary, ovarian, adrenal, hepatic or uterine function awaits further study.

A decrease in glucose tolerance has occurred in a significant percentage of patients on oral contraceptives. The mechanism of this decrease is obscure. For this reason, diabetic patients should be observed carefully while receiving Ovulen.

Because of the effects of estrogens on epiphyseal closure Ovulen should be used judiciously in young patients in whom bone growth is not complete.

The age of the patient constitutes no absolute limiting factor, although Ovulen therapy may mask the onset of the climacteric.

The pathologist should be informed of Ovulen therapy when relevant specimens are submitted.

Adverse Reactions—A statistically significant association has been shown between use of oral contraceptives and the following serious adverse reactions: thrombophlebitis, pulmonary embolism.

Although available evidence is suggestive of an association, such a relationship has been neither confirmed nor refuted for the following serious adverse reactions: cerebrovascular accidents, neuro-ocular lesions, e.g., retinal thrombosis and optic neuritis.

The following adverse reactions are known to occur in patients receiving oral contraceptives: nausea, vomiting, gastrointestinal symptoms (such as abdominal cramps and bloating), breakthrough bleeding, spotting, change in menstrual flow, amenorrhea during and after treatment, edema, chloasma or melasma, breast changes (tenderness, enlargement, secretion), change in weight, changes in cervical erosion and cervical secretions, suppression of lactation when given immediately post partum, cholestatic jaundice, migraine, allergic rash, rise in blood pressure in susceptible individuals, mental depression.

Although the following adverse reactions have been reported in users of oral contraceptives, an association has been neither confirmed nor refuted: anovulation post treatment, premenstrual-like syndrome, changes in libido, changes in appetite, cystitis-like syndrome, headache, nervousness, dizziness, fatigue, backache, hirsutism, loss of scalp hair, erythema multiforme and nodosum, hemorrhagic eruption, itching.

The following laboratory results may be altered by oral contraceptives: hepatic function: increased sulfobromophthalein and other tests; coagulation tests: increase in prothrombin. Factors VII, VIII, IX and X; thyroid function: increase in PBI and butanol extractable protein bound iodine, and decrease in T₃ uptake values; metyrapone test; pregnanediol determination.

References: 1. Inman, W. H. W., and Vessey, M. P.: *Brit. Med. J.* 2:193-199 (April 27) 1968. 2. Vessey, M. P., and Doll, R.: *Brit. Med. J.* 2:199-205 (April 27) 1968.

Before prescribing see Detailed Product Information.

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Precautions: Until patient's response has been determined, he should be cautioned against engaging in operations requiring alertness. Administer with care

to patients with cardiac or peripheral vascular diseases or hypertension.

Side Effects: Hypersensitivity reactions including skin rashes, urticaria, hypotension and thrombocytopenia, have been reported on rare occasions. Drowsiness, lassitude, nausea, giddiness, dryness of the mouth, mydriasis, increased irritability or excitement may be encountered.

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Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma.

Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms have occurred following abrupt discontinuance. Keep sedation-prone individuals under careful surveillance because of their predisposition to over-sedation and dependence. In pregnancy, caution or women of childbearing age, weigh potential benefit against possible hazard.

Precautions: If combined with other psycho-

tropics or anticonvulsants, consider carefully pharmacology of agents employed. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation, have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.

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2-mg, 5-mg, or 10-mg
tablets, t.i.d. or q.i.d. and
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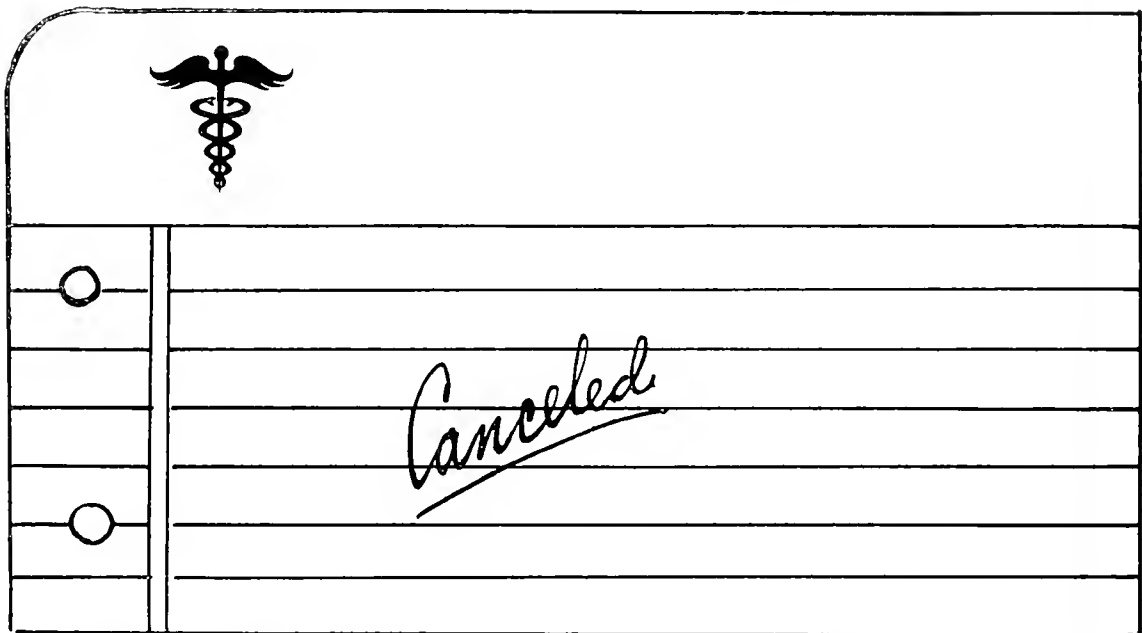
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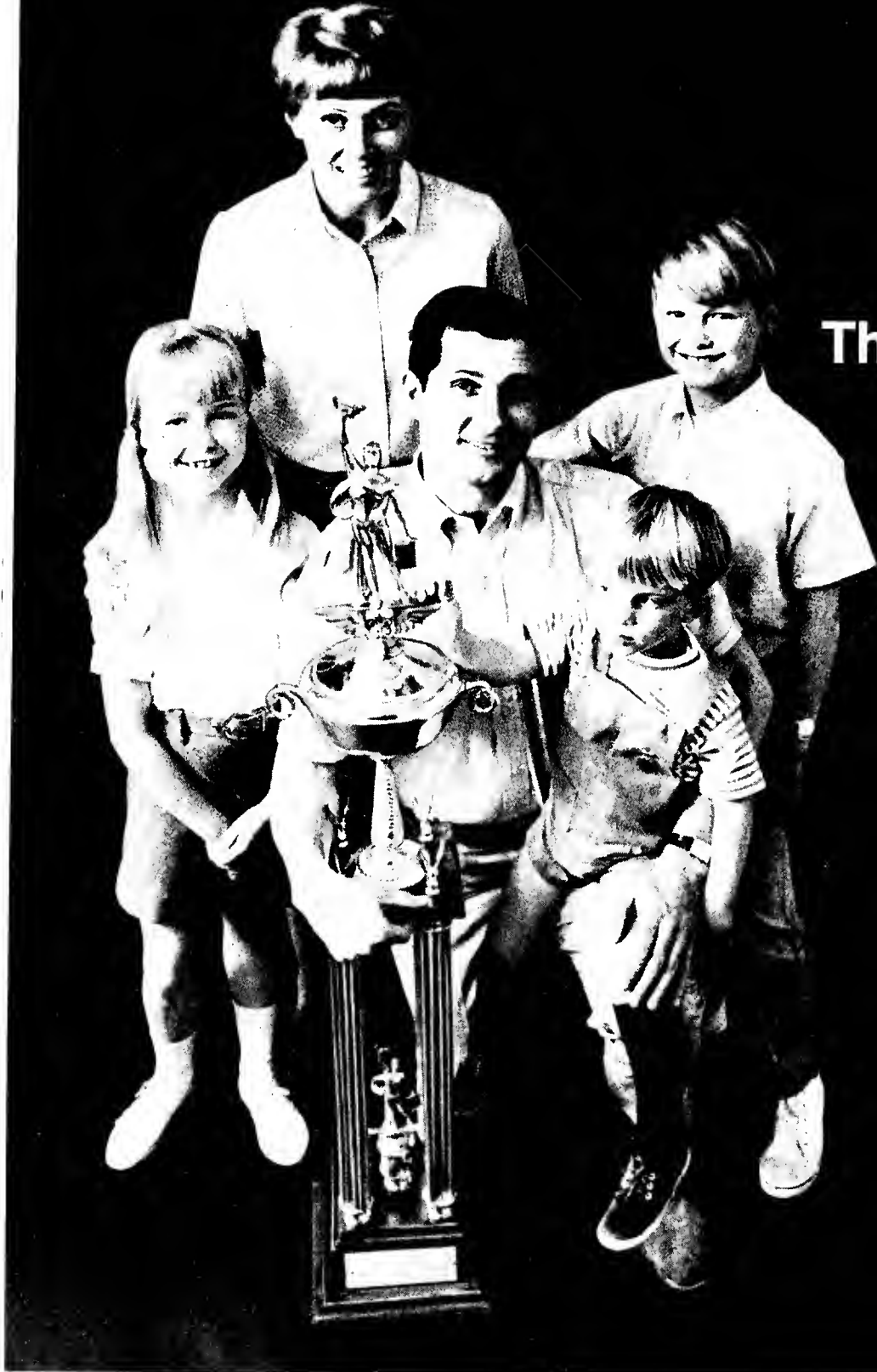
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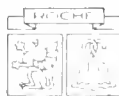
gradually as needed and tolerated. Not recommended in children under six. Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider individual pharmacologic effects, particularly in use of potentiating drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions (e.g., excitement, stimulation and acute rage) have been reported in psychiatric patients and hyperactive aggressive children. Employ usual precautions in treatment of anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation have been reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship has not been established clinically.

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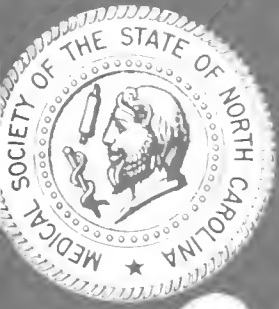


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MARTIN H. KEELER, M.D.

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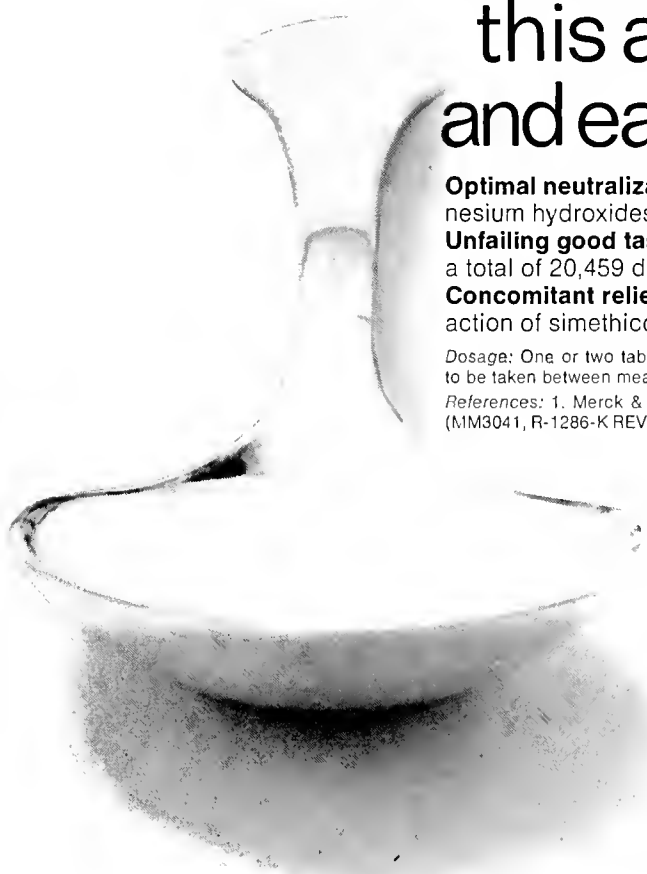
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References: 1. Merck & Co., Merck Chemical Division: Antacid Literature Survey, Rahway, New Jersey. (MM3041, R-1286-K REV 463.) 2. Danhof, I.E., report on file. 3. Hoon, J.R.: Arch. Surg. 93:467 (Sept.) 1966.

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What Are the Questions Concerning Marijuana

MARTIN H. KEELER, M.D.

Questions pertaining to marijuana are often asked in such a way that it is difficult to respond with either a meaningful answer or a studied opinion. For example: How many people use marijuana? Why do they use it? What is marijuana reaction like? Does marijuana cause adverse reactions? Should its use be made legal? My purpose in this paper is to explain why these questions should be rephrased, attempt to rephrase them, and, when possible, give answers.

How Many People Smoke Marijuana?

Epidemiologic studies could discern a simple percentage of marijuana smokers in the general population or in a particular population. Such a figure would be misleading. I have spoken with individuals who, by choice, smoke one quarter of a marijuana cigarette, and with those who, by choice, smoke four marijuana cigarettes at a time. I have talked with persons who have used the drug once and with those who have used it more than a thousand times. We would not be satisfied with a figure pertaining to the use of alcohol that did not distinguish between those who drink an ounce and those who drink a pint, or between those who have drunk once and those who have drunk a thousand times. A meaningful statement of the extent of marijuana use must include data as to dosage and frequency.

Why Do People Smoke Marijuana?

What Is the Reaction Like?

These two questions will be considered

together because the desire for the reaction is a principal reason for the use of the drug. Motivation for initial use also includes curiosity, rebellion, or the desire to follow the crowd.

Fifty-four marijuana users were interviewed as to their experiences with the drug, including motivation, dosage, and reaction.

For editorial comment see page 63

All 54 were white, between the ages of 18 and 30, and had attended college. Fifteen had taken lysergic acid diethylamide (LSD), and 39 had taken amphetamine for pleasure. While the group is not representative of all users, the answers given do indicate the variety if not the true incidence of motives and reactions.

One set of reasons was given for smoking marijuana the first time and another for continuing the practice. Twenty-eight said they first took the drug because of curiosity; 6 said they took it to go along with the crowd; 12 gave equal weight to the aforementioned reasons. Two said they first used marijuana to express protest against what they considered unfair legal restrictions; 6 said they desired some aspect of what would be considered a psychotomimetic experience.

Forty of the 54 had become regular marijuana users. Twenty-six of these said they continued to take the drug to relax, to feel good, to forget their worries, to be relieved from tension or inhibition, or to get into a state in which they could "blow off steam."

Most of these persons recognized a similarity between alcohol and marijuana where relaxation and relief from tension were

From the Department of Psychiatry, The University of North Carolina School of Medicine, Chapel Hill, N. C. 27514.

concerned. Most of the users also stated that marijuana tended to stimulate thought more than did alcohol, and did not cause fuzzy thinking, sloppy speech, or motor dysfunction as did alcohol.

Fourteen stated that they continued to take the drug because they sought some aspect of what is considered a psychotomimetic reaction. Six sought a mystical experience. Four desired a state in which they would have insight into their psychological problems. Two desired a state of associative fluidity and the availability of unusual thoughts. Two sought heightened perception.

These differences were in terms of desired effect rather than total effect. Those who sought intoxication recognized that marijuana had other effects, including "stimulation" of thought and changes in preception. Those who sought a psychotomimetic experienced recognized that marijuana has some intoxicating effect. Those of both groups who had used amphetamine noted that marijuana provided a similar effect of euphoria and exhilaration, but to a lesser degree than did amphetamine.

Marijuana is used as an intoxicant and as a psychotomimetic. Those who use it as an intoxicant claim that it is better, cheaper, and quicker to wear off than alcohol, and does not cause a hangover. Those who use it as a psychotomimetic admit that it is not as effective as LSD, but state that it is cheaper, less likely to get out of control, and provides a more "peaceful" experience than LSD. Concern over possible chromosomal damage that might be caused by LSD was also given as reason for preferring marijuana as a psychotomimetic.

Those who sought a psychotomimetic reaction usually took a higher dose. Six of the 26 who sought intoxication and 10 of the 14 who sought a psychotomimetic reaction usually smoked more than two cigarettes at a time.

Data from parts of the world where marijuana is widely used (Bouquet,¹ Chopra and Chopra,² and De Farias³) and from laboratory studies (Adams,⁴ Allentuck,⁵ Ames,⁶ and Isbell⁷) indicate that marijuana can be

used as an intoxicant and as a psychotomimetic.

Does Marijuana Cause Adverse Reactions?

This is better asked as a series of questions. Do adverse reactions occur during the time of actual drug effect? Does marijuana precipitate or aggravate psychoneurotic or psychotic behavior that persists beyond or occurs after intoxication proper? Because the latter does not occur in most users, it is likely that predisposition to such aberrations must be present in the individual so affected. Even the "Mayor's Report," widely quoted (actually misquoted) as evidence that marijuana is harmless, states that 3 of the 78 individuals who took marijuana in experimental situations became psychotic in the next few months.⁸ The report stated that the drug was not to blame but only precipitated latent tendencies in the users. In order to deny that a drug can precipitate mental illness, it is necessary to assume that chromosomal factors and childhood experiences determine predisposition, but only actual or symbolic psychological stress can precipitate psychological troubles. It is more likely that a drug that has been widely observed to undo repressive and adaptive or defensive psychological mechanisms can cause trouble in some users.

I have observed two patients with schizophrenia, as manifested by disorder in association, inappropriate affect, and disorganized behavior, improve dramatically after they stopped taking marijuana. I have observed three patients with severe anxiety and two with depression that started during a marijuana reaction but persisted for some time afterwards. I have observed two other patients with severe anxiety secondary to the spontaneous recurrence of perceptual and kinesthetic sensations first experienced during the marijuana reaction. The number of instances reported is small, but they occurred in a small population composed largely of non-users. If many people use the drug to any great extent, many psychotic and psychoneurotic states will be precipitated or aggravated. It might be useful to describe psychotic and psychoneurotic reactions as

aggravated or precipitated by marijuana use when they occur.

Tolerance to marijuana and physiological withdrawal symptoms do not occur in clinical practice. Psychological dependence, of course, does occur. The same can be said of alcohol and tobacco. I have observed two persons who used marijuana more than once daily to allay anxiety and concern over poor performance. Alcohol but not LSD can be so utilized.

The use of marijuana is associated by some with general nonconformity. It is difficult to test the validity of this association. If no marijuana were available, other types of nonconformity would continue. There is also a serious question as to whether deviant social behavior should be considered to be psychopathologic. It is necessary to differentiate the psychiatric complications of marijuana from the style of life associated with use of the drug.

Should the Use of Marijuana Be Made Legal?

This is best asked as a series of questions if any but a simple negative answer is given. Should the use of the generally poor quality of available marijuana be legalized? Should the use of pure tetrahydrocannabinol be made legal? Should some in-between preparation be made legal? Pure tetrahydrocannabinol is as effective a psychotomimetic as LSD and may also produce more confusion than LSD. If legalization makes available a more potent product than that now used, the incidence of adverse reactions would probably increase.

If the use of marijuana were made legal, should this action apply only to those over 21? To those over 18? To those over 16? A "floor" of 21 would leave many illegal

users. It is difficult to imagine any electorate accepting a lower limit.

The matter of penalty is related to the question of legality. Many people hold the opinion that penalties such as five-year imprisonment for using marijuana are unfair. I agree. Even conviction without penalty is objectionable because from then on the individual has a police record. One can be in the position of not wanting to legalize use but not being willing to impose any penalty. One solution would be to make the use of marijuana a civil rather than a criminal offense.

Conclusion

Three points regarding the use of marijuana require special comment:

1. The effect of marijuana varies. Lower dosage gives more of an intoxicating effect, and higher dosage more of a psychotomimetic effect. The sensitivity of the user and potency of the preparation are also involved.
2. Acceptance of the fact that marijuana can precipitate or aggravate latent or present psychotic or psychoneurotic disorders would eliminate much useless debate.
3. It is necessary to distinguish between psychiatric reactions to marijuana and styles of life associated with marijuana use.

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Many, from a mistaken zeal, when they think a person in danger, instead of solacing his mind with the hopes and consolations of religion, fright him with the views of hell and damnation. It would be unsuitable here to dwell upon the impropriety and dangerous consequences of this conduct.—William Buchan: *Domestic Medicine, or a Treatise on the Prevention and Cure of Diseases by Regimen and Simple Medicines*, etc., Philadelphia, Richard Folwell, 1799, p. 111.

Gastrointestinal Bleeding in Children

JOHN G. RAFFENSPERGER, M.D.

Although rectal bleeding in children usually comes from transient, local lesions and almost never indicates gastrointestinal tract malignancy, this symptom may herald serious disease. In the first place, is it really blood? Could it be the iron in the vitamins, raspberries, or beets? Several children would have been spared extensive work-ups if we had tested the stool with guaiac. The mother may very well exaggerate the volume of her child's blood loss, particularly when relating her version of the facts over the telephone. We must always take into consideration the child's size and an estimation of his circulating blood volume when evaluating the severity of bleeding. A newborn infant's blood volume is equivalent to 8½% of his body weight in kilograms; this percentage decreases to 7½% by the time the child is four or five years of age. Thus a loss of 100 ml of blood by a 10-kg child is equivalent to 700 ml from an adult.

Generally, bright red blood which streaks the stool originates in the anal canal or, at most, high in the rectum. A rapidly bleeding lesion in the upper gastrointestinal tract will stimulate peristalsis, and only slightly altered blood appears in the stools. Brown or black blood indicates contact with hydrochloric acid in the stomach, a Meckel's diverticulum, or an intestinal duplication.

Bleeding in Newborns

In a newborn infant, swallowed maternal blood is differentiated from the baby's blood by the Abt test. This is performed by placing a sample in 10 ml of distilled water and adding 0.2 ml of a 15% solution of sodium hydroxide. Adult hemoglobin turns brown, while fetal hemoglobin remains pink. Definite bleeding in infants up to one week of age is most often due to hemorrhagic disease of the newborn. One mg of vitamin K will correct the hypoprothrombinemia, but overdoses may produce jaundice. The bleeding should stop within four hours.

Most often the cause of significant gas-

trointestinal hemorrhage in the newborn remains undiscovered. Transfusion with increments of 25 to 30 ml of fresh whole blood will maintain the vital signs and hemoglobin level until the bleeding stops spontaneously.

Some infants with "unexplained" gastrointestinal bleeding have a duodenal ulcer. For this reason insert a nasogastric tube and irrigate the stomach with a solution of sodium bicarbonate. Any bloody return, even "coffee grounds," indicates gastric bleeding. When the baby's vital signs are stable and you think the stomach is washed free of clots, obtain a barium examination of the digestive tract. Even when a definite diagnosis of ulcer has been made, conservative therapy with bicarbonate irrigation and transfusions of fresh whole blood are usually successful. I have never operated upon a newborn infant with a bleeding ulcer.

A mid-gut volvulus will cause rectal bleeding in newborn infants, but the associated bilious vomiting and abdominal distention will suggest the correct diagnosis and the need for an emergency operation.

Bleeding in Older Infants and Children

Rectal fissures are the most common cause for bleeding in older infants. The mother gives a history of a constipated stool followed by bright red blood in the diapers. These babies scream with each bowel movement and become progressively more constipated; the constipation aggravates the fissure. We know the bleeding is minimal, because the baby is not pale and there is no alteration in the vital signs or blood count. The general physical examination in these cases is not particularly revealing. When you examine the rectum, have the mother hold the baby prone, then spread his buttocks. Most infants push down a bit and you can easily see the fissure. Show it to the mother before doing a digital examination or she will claim you tore her baby's rectum.

Treat anal fissures with oral mineral oil to soften the stool, warm sitz baths, local applications of zinc oxide, and plenty of time.



Figure 1

Persistent, slow rectal bleeding in older children is most likely due to rectal or colonic polyps. Sometimes the child will say, "Something comes out of my rectum." A hilarious moment in our clinic was when we all followed a small boy to the toilet, where he obliged us by pushing out his polyp for the edification of the students and house staff (Fig. 1).

It is particularly important to think of polyps in children with unexplained anemia. Juvenile polyps are inflammatory lesions and do not become malignant; in fact, if left alone, most of them will outgrow their blood supply and slough out spontaneously. Consequently polyps beyond reach of the proctoscope may be left alone unless they cause severe anemia. There are two exceptions to this statement: In familial polyposis the entire colon is studded with polyps which do have a malignant potential. Subtotal colectomy is indicated for these children. The other is the Peutz-Jehgers syndrome. The clue to this disease is the melanin pigmen-

tation of the oral mucous membrane (Fig. 2). Polyps are usually present throughout the small intestine and a few in the colon. The persistent bleeding and bouts of intus-



Figure 2

susception experienced by these children is illustrated by the following case report.

Case 1

When she was five years old, this girl was admitted to the hospital with pallor and weakness. Extensive hematologic studies including a bone marrow and a serum iron-binding capacity determination led to the diagnosis of severe iron deficiency anemia. At this time no one thought of the gastrointestinal tract, and a test for blood in the stools was not performed.

When the child returned to the hospital with the same complaints six months later, an intern performed a rectal examination and found several polyps. Further examination revealed the melanin spots. We later removed more than 20 polyps from the small intestine.

Three years later the patient returned with an intestinal obstruction and 4 gm of hemoglobin. This time she had a gangrenous jejunal intussusception, and again the small intestine was studded with polyps. Her mother had noted frequent blood-streaked stools, and the child had often complained of abdominal pain in the interim. After she recovered from the intestinal resection, another laparotomy was performed to remove the remaining polyps. Hopefully, as she grows older, the recurrence of polyps will become more infrequent.

Acute massive rectal bleeding in a child is a serious matter, requiring vigorous, rapid diagnostic and therapeutic measures. Since blood from the stomach stimulates peristalsis, bright to dark red blood may appear in the stool. Our first task is to determine whether the upper or lower gastrointestinal tract is bleeding. Insert a tube

into the stomach while the child is actively bleeding. Any blood or "coffee grounds" material suggests a source in the esophagus, stomach, or duodenum. On the other hand a clear biliary return after several irrigations and a period of gravity drainage is excellent evidence of bleeding from beyond the ligament of Trietz.

The child with active hematemesis or a bloody aspirate may have either bleeding varices of the esophagus, or an ulcer. Varices may be present with no stigmata of liver disease, since the etiology is thrombosis of the portal vein in infancy. Look for a history of an exchange transfusion at birth, umbilical sepsis, or ascites. Carefully obtained roentgenograms of the esophagus will usually lead to the diagnosis, but on occasion an esophagoscopy examination will be required. Levin-tube drainage of the stomach, with frequent irrigations and blood transfusions to maintain the vital signs, and time will tide these children over an acute bleeding episode. Some form of portacaval shunt is necessary for definitive therapy, but since the portal vein itself is thrombosed, a splenorenal or mesenteric-to-caval shunt is used.

These operations should be delayed until the child is 8 or 10 years old to insure veins large enough for a successful anastomosis. The blood loss in a child with varices of the esophagus can be terrifying, but few if any children have died during an acute bleeding episode. Everything possible should be done to tide them over until they are old enough for a shunt. A transgastric ligation of the varices will often gain two or three years.

If an infant less than one year of age commences to bleed from the stomach during an acute febrile illness such as meningitis, sepsis, or diarrhea, the chances are that he has a duodenal ulcer. In a review of the records of infants and children with complicated peptic ulcers, we found 26 instances of bleeding in babies less than one year of age.¹ Four were newborn infants. Of the 16 between 15 days and one year of age, the majority were premature infants with another stressful illness; 12 of them died without an attempt at operation. Of the four

whom we operated upon, three survived. A vagotomy, pyloroplasty, and suture of the bleeding point were performed on each.

The following case history illustrates the management of one of these babies.

Case 2

The patient was a four-month-old boy admitted to the hospital with frequent loose stools and fever. Otitis media and meningitis then developed and he was given chloramphenicol, sulfisoxazole, penicillin, and intravenous fluids. On the morning of his eighth hospital day he became cold and pulseless and had a diaper filled with blood clots. The intern gave him 20 ml of type O blood by direct syringe transfusion. During the next three hours he received 400 ml of whole blood. During this time we continually aspirated bright red blood from his nasogastric tube, and he passed foul-smelling brown liquid stools. The rate of transfusion was controlled by observing the usual clinical signs, together with the central venous pressure and output of urine. As the bleeding showed no signs of stopping, we operated and found a 1-cm posterior duodenal ulcer. He recovered after suture of the ulcer, vagotomy, and pyloroplasty.

In this age group, if there is continued bleeding and if transfusions equivalent to the child's blood volume have been necessary to maintain vital signs, an operation is in order. Vagotomy and pyloroplasty with suture of the bleeding point have been successful. Simple suture of the bleeding point does not protect the child from future bleeding during a period of stress. The same criteria apply to older children with upper gastrointestinal bleeding which occurs during another severe illness, such as caused by a severe burn. A transverse upper abdominal incision and a gastrostomy tube alleviates many of the postoperative wounds and nutritional problems encountered in this type of child.

We have now operated upon four children with bleeding ulcers complicating burns; two have survived. Stone² has recently implicated aspirin in gastrointestinal bleeding associated with burns. Aspirin may cause upper gastrointestinal ulceration and bleeding in children with other diseases. Menguy³ has demonstrated the untoward effects of aspirin on the gastric mucous membrane. An example was a five-year-old girl with a pelvic abscess following a ruptured appendix. Her PRN order for aspirin suppositories led to about 10 grains given every four hours. Melena

developed and the Levin-tube drainage became grossly bloody. Over the next four days the house staff gave her 2500 ml of blood and constantly irrigated the Levin tube with a cold solution of sodium bicarbonate. Fortunately she stopped bleeding spontaneously. Don't give aspirin to severely ill children. Use a cooling mattress or other antipyretic agents.

All the young teenagers with bleeding ulcers whom we have observed stopped bleeding after therapy with gastric drainage, sedation, and atropine. Four of 20 required an elective operation because of repeated episodes of bleeding and continued pain. A vagotomy and pyloroplasty has been successful in this age group and is the operation of choice.

Meckel's Diverticulum

We are most perplexed by those children who have significant rectal bleeding which stops, and in whom a complete evaluation does not reveal the source of hemorrhage. This, of course, brings up the question of a Meckel's diverticulum, because this lesion does not show up on roentgenograms. Most often the child with a Meckel's diverticulum will have episodes in which brick-red blood is mixed with the stool. He becomes pale, has tachycardia, and his hemoglobin level falls to 7 or 8 gm. If you must give him a transfusion to maintain his vital signs, the likelihood of Meckel's diverticulum is even greater.

The decision to operate may be difficult. Shandling¹ reviewed the records of 61 children who were operated upon for unexplained rectal hemorrhage. Thirty-one of the children underwent an exploratory operation with negative results, in 24 a Meckel's diverticulum was found, and in 6 there were other positive findings, including polyps of the cecum and, strangely enough, one colloid carcinoma of the jejunum. My policy, based on a strong reluctance to perform a negative exploration, is not to advise an operation during the first bleeding episode if the bleeding stops in a reasonable length of time. If the child bleeds a second time, especially if he needs a transfusion, he is then a candi-

date for a laparotomy. This plan is illustrated by the following case history.

Case 3

A five-year-old child entered the hospital with a history of bright red rectal bleeding of four hours' duration. The hematocrit on admission was only 8%. She was given a transfusion, then bleeding resumed and required still more blood. Her Levin drainage was clear, and diagnostic studies including proctoscopy and upper and lower gastrointestinal roentgenograms were negative. Gastric mucosa was found in the tip of the lesion, and an ulcer was present in the adjacent ileum.

Rare lesions such as a hemangioma or tubular duplication of the small intestine may bleed and be indistinguishable from a Meckel's diverticulum until an operation is performed. A volvulus or intussusception will also bleed, but the vomiting, abdominal pain, and distention are usually more prominent.

A number of medical diseases may also cause rectal bleeding. A hematologic analysis should always be done to rule out thrombocytopenic purpura or leukemia. Anaphylactoid purpura will be associated with pain and spots on the extremities and are diagnosed with ease. Milk allergies have recently been implicated as a cause of bleeding, so perhaps a dietary change should be tried in unexplained gastrointestinal bleeding.⁵

One of my friends operated upon a boy after several bouts of melena, mainly because the pediatrician was insistent and the parents were worried. After a fruitless exploration, the boy admitted to chronic nose-picking and blood-swallowing. Small infants, particularly those harboring *Shigella* organisms, will pass loose bloody stools, causing more distress to his doctors than to themselves.

Conclusion

Dr. Willis Potts⁶ described the SOB club for surgeons who needlessly operate on children with gastrointestinal bleeding. The letters don't mean what you think; they stand for "Surgeon of Bleeders." This club is not exclusive; most of us belong to it. Perhaps in the future the membership will be reduced if we take a very careful history, perform coagulation studies, and refrain from operating unless there is significant hemorrhage as outlined earlier.

The Clean Non-sterile Vaginal Examination in Labor

JAMES WILLIAM PUGH, M.D.

Until the closing years of the nineteenth century the vaginal examination was the chief method of determining the progress of labor. Holmes, in 1843, and Semmelweiss, in 1847, were the first to suspect that it was also the chief means of spreading infection from cadaver to generative tract and from one generative tract to another. In retrospect it seems obvious how Holmes and Semmelweiss connected "childbed fever" with unsterile, unclean examining hands. In that era, however, the connection was not so readily apparent, and it was some 30 years after Semmelweiss published his voluminous work on puerperal sepsis that Schmitt, Pinard, Crede and Leopold suggested that the vaginal examination be supplemented or replaced entirely by abdominal palpation. For the same purpose the rectal examination was introduced by Kroenig in Germany in 1893; this method gained popularity in this country almost immediately.¹

We now have knowledge regarding the cause of puerperal infection of the generative tract that these early obstetricians lacked; but in acquiring this knowledge we have also unfortunately acquired what has often been described as "vaginophobia." This reluctance to introduce the examining finger into the vagina, for fear of introducing potential pathogens, has resulted in the relative neglect of a very precise means of following the course of labor.

The vaginal examination has many advantages over the rectal examination. With the examining finger in direct contact with the cervix, it is obvious that one can make a more accurate appraisal of the degree of effacement and dilation of the cervix. By means of vaginal palpation, presentation of the fetus and abnormalities such as prolapsed cord can be more easily detected. In teaching institutions the vaginal examination is a definite aid to the student in learning the mechanism of labor and in acquiring skill in determining the progress of labor. In addition

to these advantages for the examiner, the vaginal examination is much more comfortable for the patient, especially for those with painful hemorrhoids.

Review of the Literature

Recorded in the literature are three general techniques for vaginal examination. First, there is the sterile vaginal examination done in the delivery room, with the patient and obstetrician prepared as for sterile delivery. Second, several investigators have used what could be termed a modified sterile technique. This technique calls for the pouring of soap or anti-microbial solution over the previously prepared vulva and the use of sterile gloves, but the examination is done at the bedside and no drapes or gowns are used. Third, and of particular interest to us, is the clean, non-sterile examination. In this method nothing is done to the vulva after the initial shaving and washing, and clean, but not necessarily sterile, gloves or a finger cot are used.

Reis² was one of the first physicians in this country to question the danger of the vaginal examination in labor when precautions were taken to insure cleanliness. In 1924 he published a survey of previous studies on the subject, all in foreign languages, and his own analysis of about 1,000 cases. Reis's review disclosed that in the four studies done from 1911 to 1922 there was no significant difference in puerperal febrility, infection, or morbidity between patients examined vaginally and rectally. Reis employed the sterile vaginal examination in the management of labor in 609 cases, the rectal examination in 271 cases, and no internal examination in 106 cases. He found that 53% of vaginally examined patients, 55% of rectally examined patients, and 44% of the patients who were not examined became febrile (a rise in temperature of 0.5 C) in the puerperium. The rate of pelvic infection was 5.9%, 6.3% and 4.7% respectively. He concluded that there was a significantly lower infection rate

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with internal examination and that there was no real difference between the rates for vaginal and rectal examination. In Reis's series there was a dramatic increase in febrility when more than one vaginal examination was performed, and he recommended that this type of examination be limited.

Nothing more was written on the subject until the period from 1944 to 1952, during which four papers published in the Russian language purported to show that vaginal examinations performed during labor involved no danger.³

In 1954 Prystowski⁴ conducted an investigation of 697 cases in which vaginal examination was performed during labor in 364 and rectal examination in 333. The vaginal examinations were of the modified-sterile type. In this series 4.6% of the vaginally examined and 5.7% of the rectally examined patients acquired infection of the generative tract.

Two years later Fara and associates⁵ published the results of an investigation of the clean, non-sterile vaginal examination. Seven hundred and thirty-five patients received this type of examination; the control group consisted of 800 patients at a nearby hospital where rectal examinations were used. The standard definition of puerperal morbidity was used; in addition, note was made of a temperature to 100 F. Puerperal morbidity was noted in 21½% of the vaginally examined patients as compared with 1.1% of the control group. This is a difference which approaches but does not reach statistical significance. When the number of patients having temperature elevations to 100 F on any day of the puerperium was compared, the percentages were 12.9 and 12.8 for the vaginal and rectal groups respectively. Antibiotics were administered more frequently in the control group, and the authors concluded that the observed difference in formal morbidity was probably due to the earlier use of antibiotics in the rectally examined patients. It was found in this series that the incidence of puerperal infection of the generative tract was not affected by long labor, ruptured membranes for

longer than ten hours, or by the number of examinations. It was also found that the febrility rate was higher among nulliparas and among patients who had had episiotomies.

In 1956 Schaefer⁷ reported the findings in 1,061 cases managed by the modified-sterile vaginal technique, 1,163 by the rectal approach, 1,127 by both rectal and vaginal methods, and 287 without internal examination. The percentage of patients with fever rising to 100 F in the puerperium were 2.5, 2.7, 2.8, and 2.6 respectively. Endometritis was diagnosed as a cause of postpartum fever in 30% of those examined vaginally, 19% of those examined rectally, 24% of those having both types of examinations, and 50% (4 out of 8) of those with neither.

In 1960 Kaern and Glenert,⁶ in Denmark, published a study of 6,848 patients examined by the clean, non-sterile vaginal technique. These patients were divided into large groups having an average of 7.5 and 2.5 examinations. The rate of generative tract infection was found to be 2.7% in the frequently examined group and nearly the same in the other group.

Four hundred seventy-five patients having an average of 8.5 modified-sterile vaginal examinations were studied by Manning in 1961.⁷ Morbidity was noted in 10 (2.1%) of this group of patients. Twenty-nine had temperature elevations to between 100 and 100.4 F. As in the preceding investigation, there was no rectal control group.

In 1963 Bertelson and Johnson⁸ reported a series of 1,057 patients, 50% of whom were examined during labor by means of the modified-sterile vaginal technique and 50% rectally. Morbidity in the puerperium was due to generative tract infection in 2.02% of those examined vaginally and 2.33% of those examined rectally.

One of the more significant bacteriologic studies of the generative tract during labor, delivery, and the puerperium was presented by Slotnick, Stelluto and Prystowsky in 1963.⁹ There were 474 patients who received modified-sterile vaginal examinations and 546 who received rectal examinations during labor. There were 3 instances of mor-

Table 1
Summary of the Literature

Investigator	Year	Incidence of Infection (Percent)		Incidence of Morbidity (Percent)		Incidence of Febrility (Percent)	
		Vaginal	Rectal	Vaginal	Rectal	Vaginal	Rectal
Reis	1924	5.9	6.3				
Prystowsky	1954	4.6	5.7	2.5	1.1	12.9	12.8
Fara	1956					2.7	2.5
Schaefer	1956						
Gaern and Glenert	1960	2.7		2.1		8.2	
Manning	1961			2.02	2.33		
Bertelson and Johnson	1963			0.7	2.4		
Stolnick, et al.	1963			1.2	0.3		
Peterson and Richey	1965					53	55

bidity in the vaginal group and 12 in the rectal group. Cervical cultures were made in all cases on admission, immediately after delivery and on the second postpartum day, and placental cultures were made in all cases. No significant difference could be found in the bacterial flora between the two groups at any time.

A more recent paper (1965) by Peterson and Richey¹⁰ describes the work done in 1963 by these investigators. Among the 435 patients followed in labor by modified-sterile vaginal examinations the incidence of morbidity was 1.2%. Among 288 patients receiving rectal examination the incidence of puerperal morbidity was 0.3%. This would seem to be, but is not statistically, a significant difference. The authors found that the number of examinations, averaging 8.5 vaginal and 6 rectal, had no effect on the development of morbidity. A bacteriologic analysis disclosed no real difference between the two groups in the flora of generative tract during the puerperium.

The findings of these investigators are summarized in Table 1.

In only two of the series reported in the literature was the clean, non-sterile vaginal examination employed—Fara³ and Kaern and Glenert.⁶ It is the purpose of this investigation to further evaluate this technique and its role in puerperal morbidity.

Materials and Methods

The investigation was conducted at the North Carolina Baptist Hospital in Winston-Salem from March 1, 1965, to February 15, 1966. The patients selected for study included all service patients admitted during

this period, except those with obvious infection, those who were delivered by cesarean section, and those whose records were incomplete regarding the various factors being investigated. On admission patients were placed alternately into one of two groups. Patients placed in the first group received clean, non-sterile vaginal examinations; those in the second group received rectal examinations and, when necessary, either a sterile or a modified-sterile vaginal examination.

All initial examinations were performed before the soap and water cleansing and shaving of the perineum. This means, of course, that the initial vaginal examinations were done before any preparation of the vulva at all. The gloves used for both types of examination were prepared in the same manner: they were sterilized, but no further attempt was made to keep them sterile except that the outer surface was not touched if it could be avoided.

After the first examination the perineum was prepared, but thereafter the vulva was not cleansed unless gross contamination, as with feces, was present; in this case, the vulva was wiped with a solution of benzalkonium chloride or pHisoHex. The examinations were done at the bedside.

Because North Carolina Baptist Hospital is a teaching institution, no limit was placed on the number of examinations performed. For every examination done by the resident and recorded in the patient's permanent record, it is estimated that at least two were performed by medical students (juniors and seniors).

Table 2
Distribution of Parity

Patients Examined Vaginally		Patients Examined Rectally	
Parity	No. of Patients	Parity	No. of Patients
0	62	0	52
1	62	1	52
2	43	2	43
3	27	3	31
4	29	4	20
5	14	5	15
6	8	6	7
7	3	7	2
8	1	8	1
9	3	9	1
10	1	10	2
11	2	14	1

Patients were hospitalized for a minimum of three days after delivery, and temperatures were taken four times a day. The American Joint Committee on Maternal Welfare definition of morbidity was used: "A temperature of 100.4 F (38 C) or higher occurring on any two of the first ten days post partum exclusive of the first twenty-four hours constitutes febrile morbidity. The temperature is to be taken by mouth by a standard technique at least four times daily." This definition was modified to read, "the first three or four days post partum," instead of "the first ten days." It is felt that an inflammatory process due to contamination of the generative tract in labor will be manifest in this shorter period of time.

Results

There were 481 patients in this series; 255 of these received non-sterile vaginal examinations, and 226 received rectal examinations during labor. The ages of the patients in the vaginal group ranged from 13 to 41 years, with an average of 24.1 years. In the rectal group the ages ranged from 16 to 47; the average age was 24.1 years in this group also. The two populations were also similar regarding parity. The distribution of parity is shown in Table 2.

The patients in the two groups had a similar number of examinations. A total of 804 vaginal and 731 rectal examinations were recorded. It is to be emphasized that these figures represent the examinations recorded and not the actual number performed.

Table 3
Frequency of Examinations

No. Vaginal Examinations Performed	No. Patients Receiving This Many Examinations	No. Rectal Examinations Performed	No. Patients Receiving This Many Examinations
1	73	1	65
2	48	2	51
3	44	3	36
4	40	4	23
5	15	5	13
6	12	6	14
7	11	7	9
8	4	8	3
9	3	9	5
10	4	10	3
20	1	14	3
		16	1

Table 3 shows the frequency distribution of examinations.

Of particular interest is the patient who received 20 recorded vaginal examinations. This patient underwent pitocin induction for eight consecutive days before delivery. The membranes were ruptured 16 hours prior to delivery, and four hours after delivery her temperature rose to 101 F. The uterine drainage and urine were cultured, and the patient was given penicillin and streptomycin therapy. Culture of uterine drainage material grew no organisms, but the urine contained *Escherichia coli* in concentration greater than 10,000 organisms per milliliter. The patient had been catheterized several times before delivery. The temperature did not rise above 99.6 F after the day of delivery. This is an extraordinary number of vaginal examinations, but, in our opinion, they did not contribute to her fever.

Table 4
Comparison of Morbidity Between Vaginally and Rectally Examined Patients

	Vaginal	Rectal
Total number of patients examined	255	226
Morbidity	10 (4.7%)	5 (2.5%)

Table 4 shows the incidence of morbidity that was associated with each method of examination. This would appear to be a significant difference attributable to the method of examination; in fact, the morbidity in the vaginal group is double that in the rectal group. Applying the chi-square test to this observed frequency, however, it

Table 5
Postpartum Morbidity* in Patients Examined Vaginally

Patient Number	Type of Infection	Age	Parity	Dystocia	Time Lapse from Rupture of Membrane to Delivery	No. Recorded Examinations	Episiotomy	Operative Delivery†
1	Endometrial	18	0	No	3 hours	8	No	No
2	Endometrial	19	0	No	4 hours	6	Yes	Yes
3	Endometrial	17	0	No	30 minutes	2	Yes	Yes
4	Endometrial	17	2	No	5 minutes	1	Yes	Yes
5	Urinary tract	19	0	No	5 hours	3	Yes	Yes
6	Urinary tract	25	2	No	3 hours	2	Yes	Yes
7	Urinary tract	19	0	No	5 hours	3	Yes	Yes
8	Urinary tract	20	0	No	10 minutes	2	Yes	No
9	Breast	20	0	No	45 minutes	1	Yes	Yes
10	Undetermined	24	1	No	10 minutes	3	Yes	No

*Three to four days post partum

†Operative delivery includes forceps delivery and/or exploration of the uterus

is found that the probability of such a difference occurring by chance alone is between 20 and 30 times in 100. (Chi-square value is 1.15, with one degree of freedom.) Hence we conclude that there is no real difference in the frequency of morbidity due to the method of examination in these two populations.

Among the 10 cases of morbidity in the vaginal group there were 4 cases of endometritis, 4 of urinary tract infections, one of postpartum mastitis, and one that was not diagnosed. Thus the corrected morbidity is even lower than the total morbidity. The corrected morbidity in the rectal group was likewise lower than the total; in this group there were 2 cases of endometritis, 1 of infected cervical laceration, and 2 of undetermined etiology.

In comparing various factors regarding the patients and perinatal events in the morbidity among the vaginally-examined patients (See Table 5) there is one outstanding feature: the incidence of morbidity was higher in the nulliparas. Sixty-two nulliparas were examined vaginally and 7 (11.3%) became morbid; only 3 of the 193 multiparas (1.05%) were morbid. This difference was not found in the rectal group: of 51 nulliparas only one became morbid.

The reason for this significantly higher incidence of morbidity in nulliparous patients examined vaginally is not at all apparent. It cannot be attributed to an abnormally long labor, longstanding ruptured membranes, or the large number of examina-

tions performed. Fara and his associates made a similar observation regarding febrility and concluded that the higher rate among nulliparas was related to the higher rate of episiotomy in this group. While this may be true, it is doubtful whether such a connection can be made between episiotomy rate and morbidity due to endometritis.

Patients receiving not more than two vaginal examinations and those with three or more had the same morbidity rate (see Table 6). There were two endometrial infections in each group. While it is admitted that the recorded number of examinations is only a rough representation of the actual number performed, it is felt that this does indicate, as other studies have shown, that the number of examinations does not contribute to morbidity.

Summary and Conclusion

A review of the literature on the subject of vaginal examinations during labor is evaluated. A random group of 255 patients were examined vaginally and a group of 226 examined rectally at the North Carolina Baptist Hospital. These groups were very similar as regards age, parity, and number of examinations performed, and no significant difference in the incidence of morbidity was found between them.

From this series, which is admittedly small, yet large enough to be statistically significant, we conclude that the clean, non-sterile vaginal examination during labor is not as dangerous as it is considered by many

Table 6
Postpartum Morbidity* in Patients Examined Rectally

Patient Number	Type of Infection	Age	Parity	Dystocia	Time Lapse from	No.	Operative Delivery†
					Rupture of Membrane to Delivery	Recorded ExaminationsEpisiotomy	
1	Endometrial	30	5	No	1.5 hours	4 Yes	No
2	Endometrial	18	0	No	30 minutes	2 Yes	Yes
3	Cervical	22	4	No	4 hours	7 Yes	No
4	Undetermined	17	1	No	25 minutes	3 Yes	No
5	Undetermined	24	1	No	25 minutes	3 Yes	No

*Three to four days post partum

†Operative delivery includes forceps delivery and/or exploration of the uterus

obstetricians today. The advantages of the vaginal examination for the patient and her obstetrician are obvious; an even greater advantage, as shown in this and other studies, is that the vaginal examination need not be sterile to be safe. *Clean* is the key word. As Fara pointed out, the clean-gloved examining finger is far different from the contaminated hands of obstetricians in Semmelweis's day. It is hoped that as a result of this study the vaginal examination will be restored to its proper status in the management of labor. It is also hoped that the findings presented here will in no way lead to a relaxation of standards of cleanliness in the labor room.

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Consumptions prevail more in England, than in any other part of the world, owing perhaps to the great use of animal food and malt liquors, the general application to sedentary employments, and the great quantity of pit-coal which is there burnt; to which we may add the perpetual changes in the atmosphere, or variableness of the weather.—William Buchan: Domestic Medicine, or a Treatise on the prevention and Cure of Disease by Regimen and simple Medicines, etc., Philadelphia, Richard Folwell, 1799, p. 128-129.

The Treatment of Corneal Ulcer with Povidone-Iodine (Betadine)

LESLIE M. HALE, M.D.

Since 1839 iodine has been recognized as an effective antiseptic. It has proven to be effective against all gram-positive and gram-negative bacteria, including spore-forming bacteria, fungi, yeasts, viruses, and protozoa.¹ Iodine preparations have been found to be more effective germicides than hexachlorophene, Merthiolate, Zephiran, or alcohol.^{2,3}

Unfortunately, iodine irritates the skin and sensitizes patients in a high percentage of cases. Also, free or elemental iodine is unstable, volatilizes rapidly, and exerts only a brief bactericidal effect. Free iodine does not dissolve readily in water, therefore, a tincture of iodine is made by dissolving iodine in ethanol. However, ethanol is an irritating solvent and causes burns. Weaker tinctures of iodine are less potent germicides. Thus, over the years, in spite of its excellent germicidal effect, tincture of iodine has been used relatively infrequently due to its sensitizing property and irritating side effects.

In an effort to find a substance that would eliminate the side effects but retain the outstanding germicidal properties of iodine, polyvinylpyrrolidone (P. V. P., povidone) was studied.⁴ This is a water soluble polymer first utilized by the Germans as a blood volume expander.⁵ Iodine in a solution of povidone becomes a stable organic complex, whose germicidal action is prolonged and enhanced as compared with a simple solution of ordinary iodine. Virtually all side effects and risks of sensitivity of iodine are eliminated. Individuals with known sensitivity to iodine have been patch-tested with this compound without any reaction. The solution is known commercially as Betadine.

Evaluation

Povidone-iodine has proved to be an outstanding germicidal agent in dermatology,

oral surgery, otolaryngology, obstetrics and gynecology, orthopedics, and especially in burn units.⁷⁻¹¹ In 1964 we undertook to evaluate the effectiveness of Betadine as an ophthalmic germicidal agent prior to ocular surgery. In a report presented at the annual staff meeting of the Division of Ophthalmology of the University of North Carolina School of Medicine and McPherson Hospital, it was shown that Betadine was superior to our previously used preoperative antiseptics and caused no side effects.¹² Since 1964 Betadine has been used routinely to prepare the skin for all our ocular surgery.

Since Betadine retained the outstanding germicidal effects of iodine without the toxic tissue effects, the next step in evaluating its use in ophthalmology was to consider (1) its effect on ocular tissues, and (2) its efficacy in sterilizing the cul-de-sac after the instillation of pathogenic bacteria. Shelanski⁵ applied 0.1 cc of undiluted Betadine in 25 guinea pig eyes and 25 rabbit eyes daily for 15 days and produced transient edema. However, in our study we sought to determine the microscopic effects on corneal tissue after irrigation with various concentrations of Betadine. Kiffney¹³ found that an undiluted solution of Betadine in rabbit eyes caused steamy corneas, and microscopically, absence of epithelium, stromal edema, and inflammatory reaction in the anterior stroma. Those eyes that received 1:1 dilutions with water, however, showed no gross or histologic changes. Greenberg and co-workers,² in an attempt to study the relative tissue toxicity of Betadine as compared to other commonly used antiseptics, confirmed the low tissue response to Betadine. They compared the effects of Betadine against bacteria and leukocytes and found that it was less toxic to tissue cells than to bacteria. Therefore, Betadine has the ability to destroy bacteria before it affects tissue cells.

With the fact established in our studies

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that half-strength Betadine does not injure the cornea, the next step in our investigation was to compare its effectiveness as an irrigating agent to that of saline, penicillin, argyrol, Chloromycetin, and Neosporin. *Pseudomonas* was selected as the test organism because of its ease of culture and also because of its known disastrous effects on ocular tissue. Two hundred and eight rabbit eyes were inoculated with *Pseudomonas* and control cultures taken before irrigation. Two minutes later one eye was irrigated with the test drug and the other irrigated with a similar amount of half-strength Betadine solution. Cultures were then made again from each eye. Betadine was far superior to the other commonly used irrigating agents tested.

On the basis of these studies, it was felt that Betadine was a safe, extremely efficient germicidal agent for topical ocular use. The next step was to use half-strength Betadine in our clinical cases of *Pseudomonas* corneal ulcers. Considering the rapid destruction of ocular tissues by *Pseudomonas*, we were naturally reluctant to withhold any antibiotic which could possibly be beneficial. Thus all four patients in this small series were treated with Neosporin as well as Betadine and atropine. We alternated half-strength Betadine and Neosporin drops every hour around the clock. In addition, one patient also received subconjunctival Colomycin.

Illustrative Cases

Case 1

The first patient received an unknown injury from a foreign body and within three days had developed a hypopyon ulcer. He was initially started on a regimen of Chloromycetin and Neopropisol and referred to us 24 hours later when the ulcer failed to respond. He had a large gray corneal ulcer and hypopyon. A culture revealed *Pseudomonas* sensitive to polymyxin and slightly sensitive to Chloromycetin. He was given alternate drops of half-strength Betadine and polymyxin, 10,000 units per ml on the half hour and drops of Chloromycetin on the hour. The ulcer and hypopyon cleared nicely over seven days, and by the third day the culture was negative for *Pseudomonas*. He was left with a well-healed thin central corneal scar and visual acuity of 20/300.

Case 2

This patient was a chicken plucker who got a chicken feather in her left eye 24 hours prior to being seen.

On examination, 24 hours after the accident, she had a soft white infiltrated lower central ulcer. She was started on a regimen of Chloromycetin and homatropine and a culture was made. This revealed a heavy growth of *Pseudomonas* sensitive to polymyxin. She was then switched to alternate half hourly treatment with half strength Betadine and polymyxin 10,000 units per ml. Within 24 hours she had a sterile repeat culture. Within three days the ulcer was definitely improved, and the patient was discharged from the hospital seven days after admission having a well-healed scar with minimal thinning. Her final visual acuity was 20/20-3.

Case 3

The third patient sustained a superficial corneal abrasion while drilling on rock. When re-examined 24 hours later he had an obviously infected corneal ulcer which had progressed rapidly within less than 24 hours. Culture revealed *Pseudomonas* and the patient was started on a course of alternating Neosporin, and half strength Betadine every half hour. In addition, he was given daily subconjunctival injections of Colomycin. Within 48 hours there was marked improvement in the appearance of the ulcer and then a gradual improvement over the next 10 days. When last seen in the clinic he had a dense well-healed scar out of the visual axis and 20/20 vision.

Case 4

This was a psychiatric patient who stated that his left eye had been infected and painful for several weeks. He gave no history of trauma. When first seen his visual acuity in the affected eye was limited to counting fingers at two feet. He had a large circular ulcer at five o'clock, with a large hypopyon. A culture revealed a heavy growth of *Pseudomonas*. He was begun on alternate half-strength Betadine and Neosporin drops every hour around the clock. Within two days he showed definite improvement, but due to the size of the ulcer, therapy was continued intensively. The ulcer slowly healed over a period of two weeks, and his final visual acuity was 20/50 without correction.

Each of these patients was examined daily with a slit lamp during the first week of treatment with Betadine. No adverse corneal reactions were noted in any of the four patients.

Comment

It has been proven that in vitro Betadine is lethal to bacteria, viruses, fungi, and protozoa within seconds. Our studies have shown that it is extremely efficient in vivo, as out of 104 rabbit eyes inoculated with *Pseudomonas* and irrigated with Betadine, 52 (50%) were completely sterile within two minutes after irrigation with 1 ml of Betadine, and in the remaining 50%, there were generally only a few colonies present,

as compared to marked overgrowth with the antibiotics tested.

Its benign effect on tissue has been proven experimentally and clinically and is attested to by its wide acceptance in dermatology, obstetrics and gynecology, and otolaryngology, not only as a superior germicidal prepping agent, but also as specific treatment for bacterial and mycotic infection of the skin, oral moniliasis, stomatitis, tonsillitis, vaginal moniliasis, and trichomonas vaginitis. It has been shown that in proper dilution Betadine has no obvious harmful effect on ocular tissue. In 1962, 60 patients were treated with povidone at the Tokyo Medical College for a variety of ocular conditions. Thirty-nine of these were cases of acute conjunctivitis.¹⁴ This study was clouded by the fact that the patients also used Achromycin ointment. Nevertheless, there was definite improvement in almost all cases of conjunctivitis and no sign of toxicity to the eye from povidone-iodine.

In the 4 cases we have presented, in spite of Betadine's impressive characteristics, we were naturally reluctant to rely on it alone to treat a *Pseudomonas* corneal ulcer. However, in view of our previous difficulties in treating *Pseudomonas* ulcers compared with the excellent results in the four patients presented, we feel it was extremely beneficial. We plan further work with animals to see if Betadine alone will cure an infected corneal ulcer. However, until we have conclusive results, we would suggest that it can presently be used as an adjunct to standard therapy.

Conclusion

If Betadine alone proves to be effective in treating infected corneal ulcers, it will truly be an invaluable aid in ophthalmology. We know of no other germicidal agent which has a totally complete spectrum for all forms of bacteria, fungi, protozoa, and viruses, and has no known risk of sensitization, acts in seconds to destroy bacteria, thereby eliminating the possibility of developing drug resistance, and in proper concentration has no side effects on ocular tissue.

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Poor people, when any of their family are taken ill, run directly to their rich neighbours for cordials, and pour wine, spirits, etc. into the patient, who, perhaps, never had been accustomed to taste such liquors when in health. If there be any degree of fever, this conduct must increase it, and if there be none, this is the ready way to raise one.—William Buchan: *Domestic Medicine, or a Treatise on the Prevention and Cure of Diseases by Regimen and Simple Medicine, etc.*, Philadelphia, Richard Folwell, 1799, p. 110.

Report of a Pre-school Testing Program for School Readiness in Haywood County

DORIS BIXBY HAMMETT, M.D.

Physicians are increasingly aware that many of the difficulties children have in school begin in the preschool years. In an effort to identify and help those children who will face difficulties in school, whether because of mental retardation, emotional problems, deprivation, or physical handicaps, including speech, hearing, motor coordination, and visual perceptual defects, physicians in Haywood County were instrumental in starting a preschool screening program in 1959. This program has gradually spread over the entire county. It has included every child entering the first grade in the county since 1965, and has been well accepted by parents, teachers, the school administration, and the community.

Haywood County, primarily a rural county, enrolls more than 900 children in the first grade each year. It has no medical school, university, college, regional medical center, mental health center, or developmental evaluation clinic, and no psychiatrist or psychologist. Hence these services must be obtained from adjoining counties. Our preschool screening program had to be developed from available resources in the county. This paper is presented to show that such a program is within the reach of every county that wishes to develop one.

Procedures

All preschool conferences are scheduled in the spring, usually April. Each child is given a sheet to be filled in with information for the cumulative school folder and a form for his physical, dental and immunization record. He is then given an appointment to come to his school on the morning of the testing program.

The program consists of a group test (SRA Short Test of Educational Ability)

given by the first grade teacher and an aide to eight to ten children at one time. Next, each child is evaluated individually by a person experienced in working with children. During this interview the child is asked to write his name (if possible), tell his age, birthdate, and number of brothers and sisters; make a cross, circle, square and diamond from models supplied on the form; and define ten words from the Stanford-Binet test. The interviewer then records his evaluation of the child's physical size, activeness, manual dominance, speech, responsiveness, and any other relative observations.

While the child is being tested, the whole concept of school readiness, both physical and mental, is explained to the parents. The group tests are also scored at this time, and each child's results, together with his individual responses and evaluation as well as all other information, are assembled for use in the afternoon conference to follow.

A psychologist conducts the afternoon conference in cooperation with other professional personnel involved. These include a physician, public health nurse, school social worker, first grade teacher, school principal, and elementary supervisor. Using all the information available, the group predicts the school readiness of each pupil and makes recommendations relative to physical factors—speech, hearing, vision, etc.; social factors; school placement; and the need for further psychological testing or referral to developmental evaluation clinics, special programs such as Head Start, institutional educational programs, and the like, for follow-up by the respective agencies.

Personnel

The psychologist is employed by the school as a consultant. He holds a Ph.D. degree and has a special interest in this field. The physician is one who also is qualified by interest, training, and experience to work with children. The individual interviewers

*Member, Subcommittee on Mental Retardation and Children's Services, Medical Society of the State of North Carolina.

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are volunteers who have been carefully selected on the basis of interest in and warmth toward children. To prepare them for participation in the preschool program, a ten-hour course on child behavior and school readiness is given at the Haywood Technical Institute. Good candidates for this work can be found in PTAs, among church school teachers, and among mothers who bring their children to physicians' offices.

Starting a Program

A physician or medical society wishing to establish a preschool testing program should explore the possibilities with the board of education, whose support is essential. The program should start as a pilot study in one school which has an active PTA and a well attended preschool conference. The project should be explained and the support of the PTA and the community obtained. The program should be expanded as personnel become familiar with the procedures and facilities for follow-up are made available. Additional schools can be brought into the program on request through their PTAs or school administration.

Conclusion

Haywood County is acutely aware that many of the needs of the preschool child are still unmet, but we are now conscious of many of the specific factors involved and have developed many more programs to meet needs which the preschool testing showed were county problems. We have not had the money or the personnel to do a followup on these children, but the information remains available, and it is the hope of the county medical society and the board of education that this can be done in the near future. The Haywood County school administration has found that the program has been instrumental, in many cases, in placing children in special educational programs such as Head Start, and feels that it will be of assistance in making recommendations for placement in kindergarten when these classes become more generally available.

The physicians of Haywood County have been a part of the preschool testing pro-

gram since its beginning and feel that many children have been given a better chance to succeed in school by the detection and correction of defects before the start of their school careers. They believe also that the program offers a practical approach to the problem of school failure that is within the reach of every community.

Special Report

OBSERVATIONS ON THE AMA CONFERENCE ON COMMUNITY HEALTH PLANNING

The AMA Conference on Community Health Planning, held in Miami on November 30, actually dealt largely with involvement in PL 89-749 and 90-174, the Comprehensive Health Planning Act and the Partnership for Health Amendments.

The theme, "The Who, What, When and How," implied a nuts-and-bolts type of seminar. Who does it? What do they do? When do they do it? How do they accomplish it? Appropriately, the morning session was held in the American Scene Auditorium.

At that session a number of broad areas were considered in several papers.

"The Scope of Community Health Planning" was a discussion of the multiple facets of the planning effort. The presentations dealt with case histories of health planning.

One, a presentation from Minnesota, revolved about the effort in that state to engage in a "bona fide partnership" in health planning. Of interest here was the concern that this particular state has for its future use of buildings of state institutions. It was noted that Minnesota has a State Planning Act. Whether this legislation involves total planning or just health planning was not clear to this observer. Of interest was the comment that community health planning requires the endorsement of local governments within the region.

A second paper described the development of health planning in San Diego and Imperial counties in California.

The third speaker reported on a "grass-roots" planning effort of medical staffs and

hospital officials in a suburban (Chicago) medical service area. Of interest in this paper was the demonstration of how the medical staff representatives and the administrative and trustee representatives from a number of institutions in a given area could sit down together and reach areas of common agreement in the overall planning for health care from an institutional basis. Somewhere during the morning an essayist commented that achievement is reached by "volunteerism mixed with wholesome, helpful governmental interplay." In looking at this definition, one cannot but observe that "wholesome interplay" might mean implications of grantsmanship in reverse.

After a recess, "Prototype Goals" was the subject for discussion.

Under the topic of environmental health, an example reflecting the relevance of an environmental health program in community health planning was presented from New Mexico. From this paper, it was obvious that the concerns of some that environment not only encompassed the pollution of ambient air and water resources, but other environmental factors more common to New Mexico than elsewhere, are yet relevant to other areas.

A presentation from Nebraska gave an example of planning for a total system of emergency medical services. A striking part of this planning effort was in the area of communications. It was demonstrated how this state overcame the hodgepodge of a totally non-interdigitated communication service by a planning effort from the top down, thus making an effective communication network.

A report on the regionalization of health services, as done in Missouri, described the development of "total patient care" under a Regional Medical Program.

These presentations possibly will be published in the proceedings of the conference, and for that reason will not be dealt with in detail in this particular report to the North Carolina Medical Society.

In the afternoon, the conferees were distributed among three seminars. This observer could not be in three places at once;

therefore, the comments here will reflect very briefly a few of the gleanings from one particular session.

The question of goals versus mission in planning areas arose. This, then, involved the question, "What is an objective?" Immediately, one ponders, "Are these not the same?" In other words, what are the ends? The matter of specific goals and priorities for action was the subject of some non-specified definition. The questions were asked: "Where does the responsibility for action lie?" and "What is the time frame for action?" It was said that planning for people equates with planning with people.

Five factors of planning were discussed: organization, fact finding, analysis and interpretation, goals, and, finally, evaluation.

It was of considerable interest to me that almost every speaker emphasized the absolute necessity for heavy involvement of the provider of care element in comprehensive health planning. Considerable discussion arose regarding what the law and the guidelines did say with reference to definitions of consumers and providers. It was quite apparent that there is a divergence of opinion as to these definitions, and further, there is a divergence of opinion as to whether local planning councils are required to have a majority of consumers at their executive levels.

The need for a continuing dialogue between all sectors of the health care field was very clearly brought out. To reach an end in the solution of any problem, an assessment of alternate solutions with knowledge of the variables must be done before any type of body can intelligently plan.

An attempt was made to define health, and someone came up with the following: "Health is freedom from physical disease, mental disease, social disease, and environmental disease." About the only thing missing here to make us *homo in excelsis* would be freedom from spiritual disease. Freedom from social *dys-ease* would be a nice thing to possess. "Please, how close," for instance, "is the nearest lounge?" Or, "I dreamed that I attended the Governor's Inaugural Ball clad only in my Maidenform bra"—these

are examples of social dys-ease. Health, by another definition, is actually freedom from physical and mental disease. Why encumber further this definition?

It is certain that more people should become involved with this sleeping tiger, comprehensive health planning. For some time now, as the result of my particular involvement in this state as a member of the Governor's Advisory Board on Comprehensive Health Planning, the Task Force on Diagnosis and Treatment, the Site Visit Teams as they refer to grant applications for Regional Planning Councils, and as chairman of the Medical Society's Subcommittee on Comprehensive Health Planning, I have been disturbed and confused, to say the least, about the apparent direction this movement is taking. It must have—and very definitely must have—more complete involvement, more intelligent participation, more concerned overview, if it is to result in a plan for the delivery of our health care in the future, be it near, or be it far.

I went to this particular conference in Miami looking for a nuts-and-bolts session—for plans for planning. I picked up a few things that were of value. In the nascent period of any development, one should expect philosophical considerations and considerable floundering.

The question also arises as to whether a state plan should evolve from the contributions of regional or local planning councils, without a very strong interplay from the

state level of a comprehensive overview in in order that continuity of effort might be maintained. Certainly, it is possible that the needs of a community, and even more probable, the strength of a community, can be demonstrated on a local level better than they can from a state level. On the other hand, remedial planning requires a surveillance of more than a region or a community if optimum achievement in the area of health is the planning goal.

It may be said that the time spent at the Conference on Community Health Planning was not wasted. However, we would say that the American Medical Association should consider holding a further conference in this same general area. If this is done, it is recommended that more attention be paid to the mechanics of community or comprehensive health planning and that resource people be available who are equipped to explain the enactments and any subsequent amendments thereto; and, further, that resource people be available to interpret the interpretations of the legislation as enacted by the Washington-based bodies who issue the directives and guidelines. Further, there should be an interpretative awareness of the variations between the states as such might refer to their own statutes and regulations within the states regarding their comprehensive planning within the geopolitical boundaries.

Frank W. Jones, M.D.

Many dirty things are extolled for the cure of intermitting fevers, as spiders, cobwebs, snuffings of candles, etc. Though these may sometimes succeed, yet their very nastiness is sufficient to set them aside, especially when cleanly medicines will answer the purpose better.—William Buchan: *Domestic Medicine, or a Treatise on the Prevention and Cure of Diseases by Regimen and Simple Medicines*, etc., Philadelphia, Richard Folwell, 1799, p. 117.

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THE MIDWINTER EXECUTIVE COUNCIL MEETING

To assure full consideration of all items brought to the Executive Council, President Welton divided the midwinter agenda into items needing immediate consideration, and those to be dealt with at an interim meeting of the Council on March 2. This humanitarian move recognizes that the mind can absorb only what the seat can endure, and avoids hasty consideration of items that come up after eight hours of discussion.

Much of the meeting was occupied with items related to the current session of the

Legislature. By the time this appears in print the only bill thus far sponsored by the Society in this session will have been introduced; it deals with revision of the statutes relating to disposal of one's body after death. The general effect of the bill would be to permit an individual to provide for the disposal of his earthly remains in such a way that the speed required for tissue and organ transplantation could be achieved. Proper safeguards for the physicians concerned would be provided. As stated before, this law would not enter into the question of a definition of death. The recommendations of the Committee Advisory to the N. C. Department of Motor Vehicles will be presented to the proper legislative authorities. The committee supports the view that possession of a driver's license should be implied consent to an alcohol test as required by law enforcement authorities. A blood alcohol content of 0.1% or more would be defined as legal evidence of drunkenness and would permit immediate license revocation. Blood alcohol tests within four hours of death would be required for all traffic accident victims, drivers, passengers, or pedestrians. Physicians would be permitted to voluntarily report to the authorities any physical or mental handicap they discover in a patient which would make driving hazardous, and be granted immunity from prosecution on grounds of breach of professional confidence.

Dean Isaac Taylor of the University of North Carolina School of Medicine asked Society support of his school's request for capital funds for enlargement of the school at Chapel Hill. They have in hand private money and promises of federal money for new buildings, but need help in obtaining state matching funds. Their plan is to increase enrollment from the present 65 students to 100 students, if new buildings are forthcoming; hospital enlargement would be part and parcel of the expansion plan.

The chiropractors are seeking to have their fees made payable under the state's voluntary health insurance law. The Society will take issue with this, contending as it has in the past that chiropractic practice

is unscientific and poses a threat to public welfare.

The North Carolina Association of Professions is seeking legislation to permit professionals to practice as a corporation, and the Society will support this effort. North Carolina corporation law requires at least three people to form a corporation, and the proposed act would require all to be practitioners of the profession concerned. Even if such an act is passed, it would not provide immunity from suits by the Internal Revenue Service. Although such suits by the IRS have thus far gone against them, the outcome through appellate courts is still unknown.

The Federal Congress will consider money for the Regional Medical Program, and the budget as submitted would hold funds at a level which would not permit the starting of new operating programs, including a number proposed by our RMP.

The Society has in the past supported legislation requiring the licensure of facilities for the day care of children, where payment is made by the parent for the care. This support is still given, although the Society does not want to be the accrediting agency for such centers.

An attempt will be made to amend the law dealing with exempting children having major mental or physical defects from attending regular schools. At present the law requires that such children be physically presented for such studies as the school superintendent requires, and parents cannot object legally to the decision he reaches. This law probably violates constitutional appeal rights, and needs amendment. Under the revised law, parents would not necessarily have to present the child, but could offer the facts for evaluation by the superintendent. If there was disagreement, they could appeal to the Board of Education and further, to the courts. The Society will support this legislation.

Blue Ribbon Committee Number One, which is studying various Society activities, proposed a management study of the operation of the Society headquarters office in Raleigh, which was previously approved. A

Miami firm will be retained to do the study, which will require three months. Their recommendations will be taken into account in the planning and design of the new headquarters building. Mr. Ford Worthy, consultant on the building, is working with the architect, Mr. Milton Small, on the early stages of planning, and will present a tentative plan to the interim Council meeting in March.

The death of Dr. C. T. Wilkinson created a vacancy on the Board of Trustees of North Carolina Blue Shield; Dr. K. D. Weeks of Rocky Mount was elected to fill Dr. Wilkinson's remaining term on the Board.

A group of health officers met with the Council and discussed the employment of lay health administrators in certain localities where no physician could be found to fill a post. After considerable discussion by the representatives of the Conference of Local Health Directors and Dr. Koomen, state health director, the Council approved a resolution calling for the employment of physicians as health directors when they are available, and the use of state as well as local funds to provide salaries which are competitive and in keeping with the training, experience, and responsibilities of the physician involved.

The Committee on Maternal Health plans to issue to all physicians currently practicing a booklet containing the abortion law passed two years ago, together with guidelines for putting this law into effect in the daily problems of medical practice. In addition, a report form will be included which, when filled out and returned to the Maternal Welfare Committee, will provide evidence of how the law is working.

Approval was given to formulating a program for training of "emergency medical care attendants," in a course lasting 6 to 12 months. The training would be carried on in emergency rooms, and would cover all aspects of emergency treatment. The graduates would be available not only for ambulance duty but possibly for emergency room help also. This work is being conducted at Watts Hospital in Durham, with the help of faculty members from Duke and Carolina.

THE POT PROBLEM

Most physicians in practice today went through college before marijuana smoking was seriously considered as an indoor sport and find it hard to think of Saturday night beer busts turning into pot parties. Perhaps physicians who came along in the Prohibition era can best appreciate the illicit aspect of this currently popular means of altering consciousness while at school. Whatever one's moral and pharmacological convictions, young people of the adventurous and impetuous sort who get involved with marijuana are mostly convinced that the medical profession does not know whereof it speaks in regard to marijuana, and lumps it with other middle class hypocrisies that alcohol is widely used within the law, yet "grass" is associated with felony. In the current JOURNAL Dr. Keeler speaks out on many of the questions concerning marijuana which plague everyone who deals with young people today. His candor and style are attractive, and whatever distaste we might have for the topic, we must be attentive to it or lose touch with those we want to help.

Recently, the work of Weil and his associates at Harvard, who conducted controlled studies of marijuana effects, has gotten much attention in the lay press as well as in medical newspapers and magazines. One of the interesting aspects of their work was the difficulty they had in finding subjects who had not already tried marijuana. While it is hard to know if their sample is typical of young people everywhere, it does suggest that the practice is far more common than those of us over 30 imagine. If this is true, as seems likely, physicians should more actively support legitimate scientific efforts to characterize the effects of marijuana physiologically, which of course includes its effects on mental activity. Then we will be in a position to "tell it like it is," a legitimate demand on the part of society, which includes our rebellious youth.

EXAMINATIONS OF PRESCHOOL CHILDREN

It is generally accepted by physicians that all children should have a complete physical

examination before they start their schooling. Certain inoculations are required, but much more in regard to nutrition, condition of teeth, hearing and visual defects, and many other points relating to the health status should be known by the school and by the parents before the first enrollment in school.

Many preschool children are accorded a thorough physical study, but quite a few, especially the underprivileged ones, are missed or have only a partial "check-up." A proposal has been made that all North Carolina children have a complete physical examination before they enter school, that this program be made mandatory—otherwise we may miss the children who need it the most.

Equally important is the need for *all* children to have a psychological study just before they enter the first grade or kindergarten. It should be known at this time which children are mentally retarded, are gifted, are emotionally disturbed, or may have some special disability in reading, spelling, and writing. Speech disorders and brain damage should be diagnosed at this time if they have not been recognized before. It is taken for granted that hearing and visual defects will be diagnosed in the physical examination, but sometimes teachers or psychologists are the first to find evidence of such disorders.

Concerning the number of children involved, authorities agree that almost 3% of all children are mentally retarded, about 6% have hearing and speech disorders, and close to 10% have some degree of specific reading disability. This last named disability is often called "learning disability," "dyslexia," or "minimal brain dysfunction." It is most important to know about all disabilities at the start of schooling and not wait until the child is in the fourth or fifth grade or even in high school before someone awakens to the fact that he has a disability. Usually by that time the child has become a behavior problem, a repeater, and a potential dropout.

It has been said that we can implement the program for preschool physical exami-

(Continued on page 69)

President's Page

YOUR CONTINUING EDUCATION

In order to keep abreast of new developments in diagnosis, treatment, and research, the individual physician who is engaged full-time in private practice must choose from an increasingly bewildering assortment of postgraduate "courses," seminars, lectures, clinics, and local, regional, and national meetings of all kinds. In addition, the amount of printed material available to him far exceeds the time he has to peruse and digest it. We are living in an era in which the volume of new knowledge being produced is far greater than the capacity of our existing mechanisms of information transfer; this in spite of the fact that an impressive number of highly capable physicians and other health professionals are striving conscientiously to improve this situation. There is no intent here, in any way, to discredit the important endeavors of these people. Indeed, we would be in bad shape without them.

It is generally recognized, however, that (1) we need better organization and correlation of the current mechanisms of continuing education; (2) we must develop a satisfactory method by which the individual physician may accurately determine his own needs in relation to the patients he serves; (3) we must develop and provide more effective and efficient teaching-learning patterns; and (4) we need to motivate *all* physicians to participate regularly.

All of this represents an essential undertaking of great magnitude, concerning which more study, exploration, and exchange of ideas are taking place than ever before. In November, 1968, three of your officers and your executive director participated in the first National Conference of State Medical Association Representatives on Continuing Medical Education, held in Chicago under the sponsorship of the AMA's Council on Medical Education. The program included consideration of (1) current programs sponsored by state medical associations; (2) cooperation among state associations, medi-

cal schools, voluntary health agencies, and the Regional Medical Programs; (3) the development of new programs; and (4) the role of the state medical society. This was a fruitful meeting and provided much information which will be useful in implementing the new Committee on Medical Education authorized by the House of Delegates in May, 1968. The establishment of this committee is very much in order. As former president Frank W. Jones has stated: "There has been a vacancy in our Society's structure for many years in the area of medical education and paramedical education." We learned that many other state societies have been active in this area for some time; we are behind. Appointments to the committee will be announced in the near future.

Four compartments of medical education are recognized in the structure of the AMA's Council on Medical Education: undergraduate, graduate (residency and specialty training), continuing, and paramedical. To establish a new committee in our organization on as broad a front as this would require funds and staff support which are not available at the moment. Nevertheless, plans should be made for achieving this goal, possibly under the aegis of our North Carolina Medical Society Foundation.

By the time you read this, Dr. Marc J. Musser, director of the North Carolina Association for the Regional Medical Association, will have addressed the January 26 meeting of our Executive Council on this matter, and representatives of our Society will have attended the 65th Annual Congress on Medical Education in Chicago, February 7-10, 1969. Following these meetings, it is expected that our new committee will begin functioning and will prepare a report for our Annual Session in May.

Your suggestions and recommendations are solicited. This may well become the most important new project of our Society.

DAVID GOE WELTON, M.D.

Committees & Organizations

NOTICE OF AMENDMENT TO THE CONSTITUTION TO BE VOTED ON BY HOUSE OF DELEGATES MAY 18, 1969

PINEHURST, NORTH CAROLINA

In accordance with Article XIII of the Constitution, the following proposed change in the Constitution is herewith printed in the NORTH CAROLINA MEDICAL JOURNAL for information prior to the meeting of the House of Delegates on May 18, 1969, at which final action is to be taken.

Amend Article XIII of the Constitution by inserting in subparagraph (1) after the word "presented," the following words: "and accepted for consideration by a majority vote." Subparagraph (1) will then read as follows:

"That such amendment shall have been presented and accepted for consideration by a majority vote in open meeting at the previous annual meeting and that it shall have been sent officially to each component society or printed in the official publication of the Society at least two months before the session at which final action is to be taken, or—"

This item was first presented to the House of Delegates at its 1968 meeting. Reference is made to page HD-13 of the published transactions of that meeting for details of the discussion thereof.

Louis Shaffner, M.D., Chairman
Committee on Constitution and
By-Laws

Non-Narcotic Analgesic Called Effective in Rectal Surgery

Satisfactory pain relief was obtained rapidly and safely in 86.9% of a series of patients given intramuscular injections of Talwin (brand of pentazocine), the new non-narcotic analgesic, following rectal surgery, according to results of a three-year study appearing in *International Surgery* (48:519, Dec. 1967).

A separate evaluation was made of its prophylactic action. Small intravenous doses of Talwin were found effective in reducing postoperative pain, in lowering the overall need for analgesia, and in shortening the duration of hospitalization, reports Dr. Mark M. Marks, who is associated with Menorah Medical Center in Kansas City, Missouri. Talwin is produced by Winthrop Laboratories.

Bulletin Board

COMING MEETINGS

Greensboro Academy of Medicine Annual Symposium
—Jefferson Standard Country Club, Greensboro, March 2-7.

North Carolina Chapter, American College of Surgeons— Greensboro, April 11-12.

Medical Society of the State of North Carolina, Annual Session, Pinehurst, May 18-21.

NEWS NOTES FROM THE BOWMAN GRAY SCHOOL OF MEDICINE OF WAKE FOREST UNIVERSITY

An Atlanta, Georgia, contractor has submitted the apparent low bid for construction of a 16-story addition to North Carolina Baptist Hospital. A base bid of \$13,390,000 was submitted by Robert E. McKee, Inc., one of seven construction firms bidding on the project.

The 367,000-square-foot building, largest component of the medical center's \$30-million expansion program, is to be completed in January, 1972. This building will increase the hospital's bed capacity from 482 to 695 and will double the space for clinics.

Presently under construction are a 122,000-square-foot addition to the Bowman Gray School of Medicine and a 400-seat auditorium, both scheduled for completion in September, 1969. A new power plant was completed recently.

Also nearing completion is a 55,500-square-foot building which will house the medical school's Division of Allied Health Programs and the hospital's School of Nursing.

* * *

Dr. David R. Mace, professor of family sociology at the Bowman Gray School of Medicine, during January conducted a four-week seminar in sex education, marriage counseling, and family life education for selected leaders from islands of the South Pacific.

Sponsored by the World Council of Churches, the seminar is the first of its kind to be held in the South Pacific. It is being held in Suva, Fiji Islands.

The purpose of the course is to provide intensive training for leading professional people from the various islands and to prepare them to develop similar programs of their own when they return to their home communities.

Mrs. Mace joined her husband Jan. 4 in Suva for the beginning of the fifth training seminar they have conducted in different parts of the world. Prior to the seminar, Dr. Mace was in New Delhi, India, where he participated in a series of conferences designed to coordinate efforts in the field of marriage and family life in that country.

* * *

Dr. Eben Alexander, Jr., professor of neurosurgery, recently served as visiting professor at Children's Hospital and Peter Bent Brigham Hospital, Boston, Mass.

Dr. Clark E. Vincent, professor of sociology and director of the Behavioral Sciences Center, recently lectured as a Kempner Visiting Professor at the University of Texas Medical Branch, Galveston. He spoke on "Sex Education as Human Relations."

* * *

Two members of the Bowman Gray faculty participated in a meeting of the North Carolina Chapter, American College of Physicians, Dec. 5-7 in Greensboro. Dr. M. Robert Cooper, assistant professor of medicine, presented a paper on "Hemoglobin Memphis Sickle Cell Disease" and Dr. Richard T. Myers, professor and chairman of the Department of Surgery, participated in a panel on "Diagnosis and management of Granulomatous and Ulcerative Colitis."

* * *

Dr. A. Robert Cordell, associate professor of surgery, spoke on "Pulmonary Embolism" at the 80th annual meeting of the Southern Surgical Association in Boca Raton, Fla.

* * *

Two members of the Bowman Gray faculty participated in Clinical Sessions of the American Medical Association Dec. 4 in Miami Beach, Fla. Dr. David R. Mace, professor of family sociology, spoke on "The Physician and Marital-Sexual Problems." Dr. Emery C. Miller, associate professor of medicine, lectured on "The Hypoglycemoses" and "The Place of Hypophysectomy in the Management of Diabetic Retinopathy."

* * *

Dr. C. Douglas Maynard, assistant professor of radiology, participated in the annual meeting of the Radiological Society of North America in Chicago, Ill. He presented papers on "Radioisotope Arteriography as an Adjunct to the Brain Scan" and "Pulmonary Scanning in Bronchogenic Carcinoma."

* * *

Dr. B. Lionel Truscott, professor of neurology at the Bowman Gray School of Medicine and director of the stroke program for the North Carolina Regional Medical Program, discussed "Stroke, The Second Step: Choice of Therapy" at a recent conference of the South Carolina Chapter, American Academy of General Practice, in Charleston, S. C.

NEWS NOTES FROM THE UNIVERSITY OF NORTH CAROLINA SCHOOL OF MEDICINE

A team of University of North Carolina scientists will use transplantation techniques in their probe to find exactly which organ in the body manufactures the two vital blood-clotting factors missing from sufferers of hemophilia.

The project will be financed by a \$174,990 grant from the John A. Hartford Foundation, Inc. of New York.

Announcement of the grant was made jointly by Ralph W. Burger, president of the John A. Hartford Foundation, Inc., and J. Carlyle Sitterson, chancellor of the University of North Carolina.

Principal investigator in the project is Dr. George

D. Penick, professor of pathology at the University of North Carolina School of Medicine, but the studies will be conducted as a joint project of both the departments of pathology and of surgery.

The key objective in the three-year research project is to correct the clotting defect in hemophilic animals by transplanting into their bodies organs from normal animals, and thereby identify the organ that produces the two blood clotting factors.

* * *

Dr. Robert G. Faust of the UNC School of Medicine conducted a zoology seminar here Wednesday, Dec. 11 on "Active Transport of Sugar by the Intestine: A New Hypothesis."

Dr. Faust is a member of the Department of Physiology in the Medical School here.

Dr. Louis G. Welt, chairman of the Department of Medicine at the University of North Carolina, was elected president of the American Society of Nephrology at the organization's annual meeting in Washington, D. C. He will take office in November 1969.

A specialist in kidney diseases, Dr. Welt has been a council member of the American Society since 1960.

For the past two years he has been chairman of the National Kidney Foundation's Scientific Advisory Board.

* * *

A University of Rochester biologist conducted a seminar here Wednesday, Dec. 4 on "Evolution of Complex Life Cycles," sponsored by the UNC Department of Zoology and Ecology Training Program.

* * *

The first step in the establishment of a \$1.5 million multi-disciplinary space sciences program at the University of North Carolina here has been made possible by a \$23,000 grant from the National Aeronautics and Space Administration.

According to program director Dr. Robert G. Faust, associate professor of physiology in the School of Medicine, the project is a compilation of 16 individual projects proposed by various departments in the University. If accepted, the entire proposal will be funded by NASA over the next five years.

The program will basically cover three general areas of space sciences: the origin of life in the universe, life support systems needed in space, and the social and economic implications of advanced space technology. In addition to the research projects, a public lecture series will be established at the Morehead Planetarium in conjunction with the planetarium staff.

The first grant will be used to set up a computerized study of communication barriers between scientists and administrators, directed by Dr. Walter A. Sedelow, associate professor of sociology and information science at UNC. It also provides for starting the lecture series and handling the administrative and clerical aspects of the program, according to Dr. Faust.

Listing some of the benefits of the project, Dr. Faust said it would "play an important role in contributing information to the Government's space pro-

gram. It will also," he said, "establish a center for space sciences research in this region as well as strengthen the research capabilities of various departments in the University by introducing a multi-disciplinary approach to a common research project in space sciences."

* * *

Some 500 dentists and other specialists in the profession attended the 14th annual Postgraduate Dental Seminar here on the University of North Carolina campus on Dec. 4.

The annual affair is traditionally North Carolina's largest one-day dental meeting.

Attending besides dentists were dental hygienists, dental assistants, dental manufacturers and suppliers and dental laboratory owners and technicians.

Guest speaker this year was Dr. Harold R. Stanley, Jr. of Gainesville, Fla. Dr. Stanley is chairman of the division of oral pathology at the University of Florida School of Dentistry.

Luncheon speaker for the occasion was Dr. C. Arden Miller, UNC vice chancellor for health sciences. Dr. Miller is former dean and provost of the University of Kansas Medical Center and is author of 34 publications dealing with a wide range of medical subjects including pediatrics, research and health education.

* * *

A 50 per cent increase in students specializing in population studies at the University of North Carolina here has been reported by the Carolina Population Center.

The 1968-69 enrollment includes 100 graduate and postdoctoral students from 14 nations. Fifty five are from the United States.

Enrollment totaled 66 for the 1967-68 year and 26 for the previous year.

A breakdown of the students' disciplines in the population program this year shows that the departments of sociology, health administration, and biostatistics sponsor nearly half, or 46%, of the students.

Maternal and child health, zoology and anthropology rank next with 32%. The other participating departments, with the remaining 22% of the population students, are: education, genetics, political science, psychology, radio, television and motion pictures, epidemiology, health education, and geography.

* * *

A pioneer in the field of antibacterial research from the Rockefeller University delivered the annual Merimon Lecture here on Wednesday, Dec. 4.

Dr. Rene Jules Dubos spoke on "Civilization and the Man of Flesh and Bone."

A microbiologist and experimental pathologist, Dr. Dubos discovered the first antibiotics, tyrothricin and gramicidin, almost 30 years ago.

* * *

Prof. S. Van Creveld, director of the Hemophilia Clinic at Huizen in the Netherlands, addressed practicing medical doctors here at North Carolina Memorial Hospital on Dec. 12.

Prof. Van Creveld is recognized as one of Europe's greatest pioneers in hemophilia research.

His topic was "Disorders of the Blood Coagulation Mechanism." Prof. Van Creveld's appearance was part of the University's program in continuing education.

NEWS NOTES FROM THE

DUKE UNIVERSITY MEDICAL CENTER

Ties between Duke University Medical Center and health care personnel in other nations were strengthened recently when radio station WB4BLK received machines that will aid doctors from countries participating in Duke's Med-Aid Program. The eight units are a gift to the medical center from Western Union.

The equipment, called facsimile machines, will permit physicians in other lands to send graphic diagnostic test results, such as x-rays, to Duke specialists for consultation.

Project Med-Aid, begun in 1966, is designed to open the resources of medical specialists at Duke to doctors in nations which do not have access to large medical centers. These foreign physicians contact Duke through station WB4BLK to get the opinions or recommendations of Duke doctors who are experts in that field.

In addition to receiving test results from doctors in other countries, the new equipment will permit medical center personnel to send medical illustrations and photographs back to isolated doctors to aid in treating their patients.

Station WB4BLK, with facilities located on the fifth floor of the Gerontology Building, is manned by volunteer members of the Duke Medical Center Amateur Radio Club to carry on project Med-Aid. The station has 1,000-watt transmitting and receiving equipment.

The station has received inquiries from over a dozen countries in Central and South America and Africa. The project is being supported by the Elida B. Langley Charitable Trust of Fayetteville, N. C. and New York.

* * *

Dr. J. Leonard Goldner, chief of orthopaedic surgery at the Duke University Medical Center, is the new president of the American Society for Surgery of the Hand.

Goldner was installed in January during the organization's annual meeting in New York City. The society's membership of 125 is divided among orthopaedic, plastic, and general surgeons.

During the scientific portion of the meeting, Dr. Goldner and Dr. Stephen N. Lang, a Duke orthopaedic resident, presented a paper dealing with the strengthening of weakened and partially paralyzed extremities by certain specialized reconstructive procedures.

Members of the Duke orthopaedic service also attended the annual meeting of the American Academy of Orthopaedic Surgeons.

* * *

The Department of Anesthesiology at Duke University Medical Center has promoted five faculty members, one to full professor, two to associate professor and two to assistant professor.

Anesthesiology was elevated to departmental status last fall.

Dr. Kenneth D. Hall, an associate professor in the department since 1963, was named professor of anesthesiology.

Dr. Heriberto Alfredo Ferrari, formerly of Buenos Aires, Argentina, has been promoted from assistant professor to associate professor of anesthesiology. He came to Duke as assistant professor in 1966.

Also named associate professor of anesthesiology was Dr. Vartan Vartanian, an assistant professor in the department since 1967.

Promoted to assistant professorships were Dr. Patrick J. Breen and Dr. James LeRoy King. Both were formerly associates in anesthesia.

* * *

Promotion of two faculty members in the Division of Orthopaedics and one in the Department of Biochemistry-Genetics at Duke University Medical Center has been announced.

Dr. Frank W. Clippinger, Jr., has been promoted to professor of orthopaedic surgery from his former position as associate professor in that field. He came to Duke in 1958.

Promoted to associate professor of orthopaedic surgery was Dr. Frank H. Bassett III, assistant professor in the division since 1963. Dr. Bassett is also assistant professor of anatomy.

Dr. Jayant G. Joshi, originally of Poona, India, has been named assistant professor of biochemistry. He has been associate in biochemistry since 1966.

PRESIDENT WELTON REPLIES TO COHEN

The physicians of the United States did not create the inflation which is eroding the purchasing power of the U. S. dollar, and it is a gross injustice for certain government officials and numerous columnists to insinuate that physicians are responsible for this situation. President David G. Welton declared recently in a statement for the State Medical Society.

In the closing days of the Johnson administration, the then Secretary of Health, Education, and Welfare Wilbur J. Cohen was reported as accusing physicians generally of overcharging Medicare and Medicaid patients and of being responsible for causing financial difficulties in these programs.

The Medical Society statement came in rebuttal to a warning by Secretary Cohen, at a recent news conference, that if the nation's doctors don't hold their fees to present levels, then limitations on fees for which doctors could be reimbursed would undoubtedly be imposed.

State Medical Society officials contend that it is patently unfair and unworthy for Mr. Cohen to make these charges. He knows that 70% of the costs in our hospitals go for wages to hospital personnel. As those wages have increased, corresponding raises have had to be granted to similar personnel employed in physicians' offices. Last year the Department of Health, Education, and Welfare itself publicly admitted that Medicare costs would have been much higher had

it not been for the increased productivity of the physicians.

It is timely to realize that neither Medicare nor Medicaid can work successfully without the cooperation of the medical profession. This cooperation has been extended in a multitude of ways in addition to the care of the patients themselves. Physicians and medical staff people have spent countless hours and traveled countless miles to attend coordinating conferences and workshops with HEW and other government officials during the past three years in sincere efforts to make these programs work.

Mr. Cohen's attitude and accusations are most unbecoming to a high government official who in the past has asked for the assistance of the medical profession and has received it, said Dr. Welton. He might just as well blast our combat men in Vietnam for the high cost of the war.

DAN K. MOORE APPOINTED 1969 HONORARY HEART FUND CHAIRMAN

At ceremonies held at the Capitol in Raleigh on December 31, Governor Dan K. Moore accepted the position as 1969 Honorary Heart Fund Chairman.

Governor Moore stated, in accepting the position as Heart Fund Chairman, that "diseases of the heart and blood vessels are responsible for more deaths than all other causes combined, resulting in widespread suffering, and often creating economic hardship in our homes and businesses."

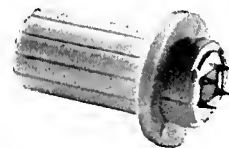
"Your North Carolina Heart Association, through

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Pneumonia? Leukemia?
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Systemic Fungal Diseases?
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its divisions and chapters, carries forward a relentless fight against these diseases through programs of research, education, and community service, as made possible by public contributions to the Heart Fund."

"I am pleased, therefore, to call attention to the Heart Fund Drive to be held in February, 1969, and urge all our citizens to support this important campaign with their gifts and voluntary services."

At the ceremonies, a cake commemorating the 20th anniversary of the North Carolina Heart Association was presented to Governor Moore on behalf of the thousands of Heart volunteers across the state.

PRE-SCHOOL EXAMINATIONS

(Continued from page 63)

nations but we cannot carry out the psychological studies because we do not have the personnel. Apparently the objectors do not realize that preschool psychological screening may start with group testing that can be done by teachers or other trained volunteers, leaving only about 20% of the children for individual study.

Programs of preschool psychological screening have been carried out in several localities and found to be valuable. It is of interest to note that the May, 1953 issue of the NORTH CAROLINA MEDICAL JOURNAL carried a report on the school psychological clinics in Winston-Salem. Preschool screening was a part of this program. In this issue of the JOURNAL is the account of the pioneer work along this line carried out under the instigation and direction of Dr. Doris Hammett in Haywood County. Dr. Hammett started her preschool screening program about eight years ago and it has become a well established service for the schools in that locality. Her work serves not only as an example for others to follow, but as proof that it can be done. It should be added that recently preschool psychological screening has been started by some of the newly created mental health centers and some local school departments.

Commitment of the Medical Society of the State of North Carolina to preschool screening programs has been recorded in the booklet "Mental Health Services for Children." This is a joint report published in 1965 by committees from the North Carolina Mental Health Association and the Medical Society of the State of North Carolina. In this report are the following statements:

Examinations of preschool children should be on the basis of a continuous evaluation from infancy until the child enters school . . . Along with other preschool examinations, psychological and related studies should be provided for all children in order to have a broad-gauge estimate of their general intellectual capacity and some leads or intimations about special abilities and disabilities.

It is obvious that psychological screening and physical screening should be coordinated, and it is suggested that this overall surveillance of preschool children be in the domain of the State Department of Public Instruction with due help from other departments concerned. Physicians have an important role to play in many aspects of these preschool examinations.

LLOYD J. THOMPSON, M.D.

AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS

Survival with a bone cancer known as Ewing's sarcoma can be extended through use of supervoltage X-ray, according to a report presented to the American Academy of Orthopaedic Surgeons last month.

Dr. Robert S. Mathews and his associates at Duke University, Durham, North Carolina, reported on ten patients, two of whom are alive five years after diagnosis, two are well three and a half years after discovery, and two are living two years.

Ewing's sarcoma has a grave prognosis, he pointed out. Five-year survival is considered to be less than 10 per cent.

Drug treatment supplements the radiation, but there is no way of determining how it contributes to the reduction of the tumor, the surgeon said.

"Successful radiotherapy depends on exploitation of differences in radio-sensitivity between the tumor and normal tissue so that the injury produced in normal tissue is reversible while that in the tumor is not," Dr. Mathews said.

He cautioned that adverse complications can result in radiation of the bone.

Associated with Dr. Mathews in the study were Drs. C. R. Lincoln, J. Leonard Goldner, W. D. Bradford, and P. J. Cavanaugh.

SOUTHERN MEDICAL ASSOCIATION

The following North Carolina physicians and surgeons have been elected as officers of sections of the Southern Medical Association:

William P. Wilson, M.D., Durham, chairman-elect of the Section on Neurology and Psychiatry; Samuel Boyarsky, M.D., Durham, chairman of the Section on Urology; William T. Berkely, Charlotte, vice chairman of the Section on Plastic and Reconstructive Surgery; F. Wayne Lee, M. D. vice chairman of the Section on Orthopedic and Traumatic Surgery.

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Weekly Benefits	Under 30	30 - 39	40 - 49	50 - 59	60 - 69
\$250.00	\$124.50	\$142.00	\$204.50	\$284.50	\$352.00
200.00	100.50	114.50	164.50	228.50	282.50
150.00	76.50	87.00	124.50	172.50	213.00
100.00	52.50	59.50	84.50	116.50	143.50

Plan L-65

Maximum Accident Benefits
Lifetime Maximum Sickness Benefits
To age 65

SEMI-ANNUAL RATES

Weekly Benefits	Under 30	30 - 39	40 - 49	50 - 59	60 - 69
\$250.00	\$154.50	\$177.00	\$242.00	\$324.50	\$352.00
200.00	124.50	142.50	194.50	260.50	282.50
150.00	94.50	108.00	147.00	196.50	213.00
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In Memoriam

Henry Hiram Hodgkin, M.D.
1880-1968

As the smiling light of early morning lifted the shadowy curtain of night on July 4, 1968, death came to another of our colleagues and the immortal spirit of our good friend, Dr. Henry Hiram Hodgkin, winged its flight to his home eternal.

Only those who knew him best can realize how feeble are mere words when one tries to write of the life and character of Dr. Hodgkin. "As inanimate bronze and cold stone can only show forth the outward form and features of the living, breathing man the sculptor would portray, so also is the pen barren in its efforts to truly represent the real man and the true friend we have known and loved." Were we able to gather up all the fond words his loving friends have spoken of him; were we able to reproduce here the many kind thoughts of him that have coursed through the sorrowed minds of his devoted patients; the result would still lack the vital throbbing spirit of the living man who once moved among us and fought with us the many battles against suffering, disease, and death. Like all true physicians, his life was the life of service to his fellow man and service cannot be represented in cold words and prosaic type. It is of finer stuff that lives on and on.

"Till time is no more—

Till the sun grows cold and the stars are old,
And the leaves of the judgment book unfold."

It is with these thoughts uppermost in our mind that we attempt to render a proper memorial to our former friend and companion.

Dr. Hodgkin, the eldest son of James William and Mary Catherine Conoly Hodgkin, was born June 22, 1880, in the Antioch community of what is now Hoke County (then Robeson). After graduating from the North Carolina Military Academy, Red Springs, he entered the North Carolina Medical College at Davidson: later Charlotte, where he graduated in 1905. He furthered his medical education at the University of Maryland, Baltimore; graduating in 1906. After spending one year in Alabama as the plantation physician on a large cotton farm, he returned to Red Springs and began the general practice of medicine. After 25 years of general practice, Dr. Hodgkin went to New York Post-Graduate Hospital where he completed a surgical course in throat surgery and then returned to Red Springs to open the Hodgkin Clinic, operating this for 30 years. In this field of work he operated on thousands of persons, doing tonsillectomies far and wide. He was active in the organization of the Robeson County Health Department, and was the only original survivor to this board at the time of his death.

Dr. Hodgkin served as medical examiner for the Armed Forces in both World Wars I and II, as well as for the local unit of the National Guard from its original organization until his death. He was a Mason, an elder in the Presbyterian Church of Red Spring, past-president of the Robeson County Medical



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60 - 64*	86.50	193.00	210.50

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60 - 64*	66.50	148.00	159.00
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Society, and a member of the Medical Society of the State of North Carolina.

In 1910 he married Miss Carrie McEachern, who survives him. Also, two children, Mr. Henry Hiram Hodgkin, Jr. of Red Springs and Mrs. Roger F. Hall of Lumber Bridge.

For 61 years—I think the longest time any physician practiced medicine in Robeson County—Dr. Hodgkin was in deed and in truth a “family physician.” Because of his kindly and friendly disposition he was loved and honored by all—and this was especially true of the children of the family in which he practiced. For him the child had no dread as being the cold hard, unfeeling doctor—he was their friend and companion in the sick room, in the home, and in the street.

Many an infant eye was full to overflowing and many a child's pillow was wet with tears of real sorrow, when it became known that their beloved “Doctor Hodgkin” was no more.

His was a life that any man might justly strive to emulate—a physician skilled in his profession—a citizen honored and respected—a true friend—in short, a honorable Christian gentleman. Would that every member of our noble profession could as justly merit the tribute we rightly pay to his memory.

Roscoe D. McMillan, M.D.

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Bell & Howell Introduces Language Master Program For Use in Rehabilitating Aphasics

A language rehabilitation program for persons with aphasia has been added to the Bell & Howell Language Master Audio-Visual Instructional System, it was announced recently.

The Aphasia Language Rehabilitation program, provides individualized auditory and visual recognition drill for aphasics and others suffering from speech impairments. It was developed to meet the need for daily therapy where daily contact is difficult or impossible.

With the Aphasia Language Rehabilitation program and using the Language Master, subjects can work at home and make measurable progress from week to week, according to the author, Dr. Joseph S. Keenan, chief speech pathologist in the Atlanta Veterans Hospital.

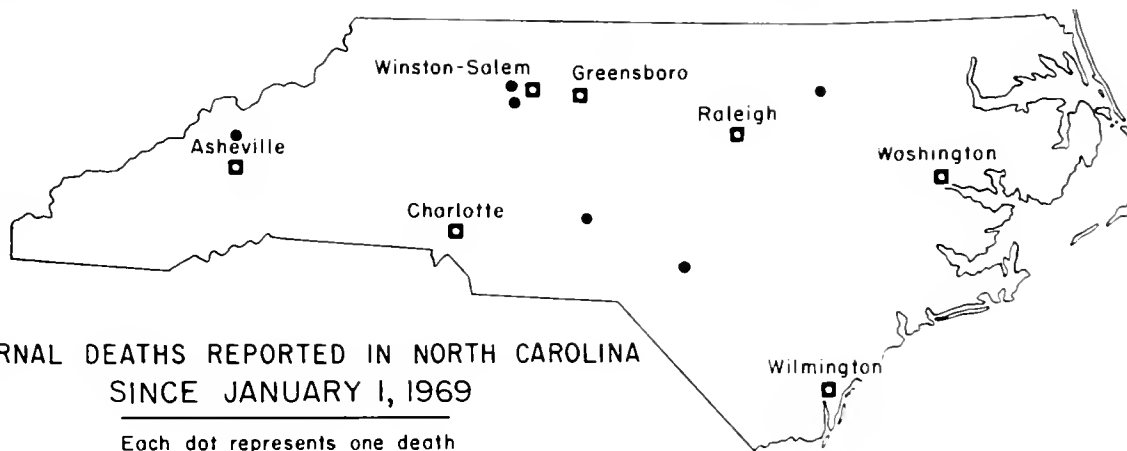
Charles Brantley Appointed Divisional Sales Manager by Wyeth

Charles H. Brantley has been named Wyeth Laboratories' divisional sales manager in Cleveland, Ohio, it has been announced by L. J. Hymel, vice president, sales and promotion.

Mr. Brantley, a graduate of Wake Forest University, joined Wyeth in 1950 as a territory manager in Huntsville, Alabama. He became a territory manager in Macon, Georgia, in 1951, and in Charlotte, in 1956. In 1960 he was promoted to district sales manager in Raleigh, N. C.

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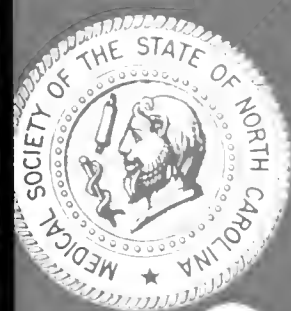
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IN THIS ISSUE:

Metabolic Screening in North Carolina

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Experience with a Metabolic Screening Program in North Carolina

E. ROBERT NEELY, M.D.,* THEODORE D. SCURLETIS, M.D.,† AND JOSEPH I. BOUCHARDT‡

On reviewing our 1966 experience with a metabolic screening program as reported in 1967,¹ it seems ridiculously simple in comparison to the complex picture evolving one year later. If anything proves the effectiveness of mass screening techniques, it is the tremendous success obtained in the existing phenylketonuria (PKU) screening programs of various states and the large number of patients with hyperphenylalanemia who have been identified. With the identification of these patients, it has been found that hyperphenylalanemia is not a simple, clear-cut abnormality, but a complex assortment of defects.²

Carpenter,³ in a recently published summary of the overall PKU problem, tabulated five possible enzymatic abnormalities, six variations of which could result in any one of 35 causes of hyperphenylalanemia in the newborn. Although we are still more interested in the phenylalanine hydroxylase system than in the other associated enzyme systems, we must be concerned with all of them until we learn more about the disease.

In order to study these variants of hyperphenylalanemia, we must have a source of patients to work with, and our screening programs are the only effective way of identifying these people. In 1967 North Carolina was one of 37 states having a PKU screening program,⁴ and one of 5 states having a

voluntary program. One would expect that additional states are this year increasing the identification of affected infants.

The recent controversy over screening programs has cooled, and the complexity of the problem has stimulated many new approaches and additional research in this field. However, there still seems to be no disposition to let any patient go untreated, and recent articles have suggested treating even the transient hyperphenylalanemic patient, with an elevated blood tyrosine level and a proven diagnosis of generalized enzymatic immaturity, until the blood phenylalanine level does not rise when challenged by a normal diet.² This attitude probably reflects not only a fear of possibly damaging an infant, but also insecurity with regard to the legal pressures of our society.

Many suggestions for obtaining more freedom in needed PKU research have been offered; however, the precautions stated in a 1967 directive by the American Academy of Pediatrics⁵ are extremely pertinent to this problem. The directive contains five guidelines for future use in establishing metabolic screening programs, all based on past experiences, and a declaration that no other disease now under consideration for mass screening warrants mandatory legislation. In North Carolina we have had more than satisfactory participation from all components of the medical profession, and we find it difficult to believe that a mandatory law will ever be needed, if the proposed program is adequately understood, needed, and desired, as PKU screening has been.

The North Carolina Approach

In 1965 the North Carolina State Board

Presented at the Biology-Epidemiology-Laboratory Section Meeting, Southern Branch American Public Health Association, Roanoke, Virginia, May 30, 1968.

From the North Carolina State Board of Health, Raleigh.

*Maternal and Child Health Section.

†Director, Personal Health Division.

‡Public Health Statistics Section.

Request for reprints to Box 2091, Raleigh, N. C. 27602.

of Health proposed a PKU detection program for the state. The proposal was to screen all newborns by use of the McCaman and Robins fluorometric test, refined and automated by Drs. John B. Hill, George K. Summer, and others from the departments of pharmacology and pediatrics of the University of North Carolina School of Medicine.

Under this program blood specimens, collected on filter paper during the first days of an infant's life, are sent to the Laboratory Division, State Board of Health, for chemical analysis. If an infant has a blood phenylalanine level above normal on the first test, repeat tests are requested until the phenylalanine level falls within normal range or until the presence of PKU is established.

As proposed, the entire program is coordinated through the State Board of Health, with voluntary participation on the part of physicians and hospitals. While 100% participation would be the ultimate goal, the 75% received in 1966 and more than 90% in 1967 has been encouraging; so we do not anticipate any request for mandatory legislation.

The details of our pilot program regarding the best time to test the babies, standard deviation of results, means of results, etc., have been reported previously.¹ Our screening level during all of the pilot studies was set at 3.6 mg/100 ml, where it has stayed. After many repeated tests on a series of 5,000 infants, it was found that only one test was needed if normal results were obtained after the infant had received formula for 24 hours or was breast fed for 48 hours.

The level of phenylalanine employed in most state screening programs is 4.0 mg/100 ml, especially those using the Guthrie method; however, we have kept our screening level at 3.6 mg/100 ml. Our reason for doing this was that the mean blood levels shifted to a slightly higher level in the late autumn and winter, but declined again in the spring and summer. After two years of evaluating every possible reason for these changes, it has been proved that humidity causes a marked variation in diffusion of

Table 1
Mass Screening of Newborns by
Blood Phenylalanine Tests

	1966	1967
Total live births	93,225	92,900
Total newborns tested	68,993	82,801
Test rate	73.9%	89.1%
Two private hospitals doing own tests	—	3,479
Overall state test rate	—	92.9%
Specimens with insufficient filling	2,829	2,425
Portion of total samples	4.1%	2.9%
Insufficient samples repeated	808	1,021
Overall insufficient sample rate	2.9%	1.7%

the blood in the filter paper. High humidity produces more dispersion of blood into the filter paper, and lower test levels. This observation has been well documented by Dr. John B. Hill, whose results are to be submitted for publication in the near future.

Results

Although preliminary results of the Metabolic Screening Program were published previously,¹ it is felt that the best way to appreciate the changes in 1967 is to compare the data for the two years. January 1, 1966 marked the beginning of our statewide program in North Carolina.

In 1967 North Carolina births numbered 92,000, as opposed to 93,225 in 1966. These figures show a tendency to level off after a significant four-year decline (Table 1). The number of early neonatal deaths were not considered, and this could possibly account for a slight rise in the percentage of infants tested, which increased from 73.9% in 1966 to 89.1% in 1967. Under our voluntary program, hospitals have the prerogative of doing their own screening, as two have done. Adding their estimated births, we find that a total of 92.9% of all newborns were tested.

Specimens received which were not read because the blood sample were insufficiently filled declined slightly over the two years; this amounted to a significant decline in percentage, from 4.1% to 2.9%, with an increase of repeated tests on the insufficient samples.

In 1966, of 68,933 tests performed, 1,068 (1.5%) showed blood phenylalanine levels above 3.6 mg/100 ml. In 1967 values were above the critical level in 1,005 (1.2%) of

Table 2

Number of Tests at Hospital Discharge and Number and Percent of Positive Results*
According to Race

Race	1966-No. of Tests in Hospital	Positive No.	Results %	1967-No. of Tests in Hospital	Positive No.	Results %
Total	68,933	1,068	1.5	82,801	1,005	1.2
White	45,728	542	1.2	51,629	466	0.9
Non-White	16,757	420	2.5	22,300	347	1.6
Unknown	6,448	106	1.6	8,872	192	2.2

*Blood phenylalanine levels above 3.6 mg/100 ml

Table 3

Number of Tests at Hospital Discharge and Number and Percent of Positive Screens*
According to Sex

Sex	1966-No. of Tests in Hospital	Positive No.	Results %	1967-No. of Tests in Hospital	Positive No.	Results %
Total	68,933	1,068	1.5	82,801	1,005	1.2
Male	35,248	563	1.6	42,485	532	1.2
Female	33,615	504	1.5	40,202	473	1.2
Unknown	70	1	1.4	114	0	0

*Blood phenylalanine levels above 3.6 mg/100 ml

Table 4

Number of Tests at Hospital Discharge and Number and Percentage of Positive Results*
According to Birth Weight

Birth Weight	1966-No. of Tests in Hospital	Positive No.	Results %	1967-No. of Tests in Hospital	Positive No.	Results %
Total	68,933	1,068	1.5	82,801	1,005	1.2
Under 3 lb. 5 oz.	366	20	5.5	418	16	3.8
3' 5"—5 lb. 8 oz.	5,288	163	3.1	9,717	151	1.6
5' 9"—7 lb. 11 oz.	40,506	578	1.4	46,846	605	1.3
Above 7 lb. 12 oz.	21,600	294	1.4	24,384	221	0.9
Not reported	1,233	13	1.1	1,436	12	0.8

*Blood phenylalanine levels above 3.6 mg/100 ml

all tests recorded. The number of tests performed, together with the number and overall percentage of positive results, are shown according to race (Table 2). The incidence of levels above 3.6 mg/100 ml among non-white infants was almost twice that of white infants in each of the two years, with a ratio of 2.5% to 1.2% in 1966, and 1.6% to 0.9% in 1967. In both years we had a few tests in which race, sex, and birth weight were not recorded, race being the only significant omission. Race is important in any medical situation because of the great variation in the incidence of disease between various races and ethnic groups.

Table 3 shows the number and percentage of positive test results according to sex. In both years the distribution was essentially equal.

Table 4, presenting positive results according to birth weight, shows that in both

Table 5
Number of Infants with Positive Screening Levels*
and Number Having Repeat Tests

	1966	1967
Number of infants with positive screens	1,068	1,005
Number having one repeat test	631	518
Percent	59.1%	51.5%
Percent of repeats having one test	81.9%	18.5%
Percent of repeats having two tests	14.1%	3.8%
Percent of repeats having three tests	2.1%	1.9%
Percent of repeats having four or more tests	1.9%	1.9%
Number of infants with more than 10 tests	3	8

*Blood phenylalanine levels above 3.6 mg/100 ml

years premature infants (weighing less than 5 pounds 8 ounces) had a higher percentage of positive results than did full-term infants (more than 5 pounds 8 ounces). In infants weighing less than 3 pounds 5 ounces, the percentage of positive results was 5.5% in 1966 and 3.8% in 1967. In mature infants the percentage of positive test results was 1.4% in 1966 and 1.16% in 1967, a slightly

lower figure than the overall average for the program. In some series the initial transient phenylalanine blood levels were elevated in 25% of all premature infants,⁶ and even though our percentages are not that high, it is known that immaturity of the phenylalanine hydroxylase and other enzyme systems can produce elevated levels.

Table 5 represents the number of positive tests results that were followed by repeat tests to determine if further rise occurred and if evaluation was needed. In 1966 (first column) 59.1% of positive tests were repeated, while only 51.5% were repeated in 1967, although the effort to obtain repeat tests was essentially the same. The remainder of the table shows the percentage of second and third repeat tests in the initially retested infants, with 1967 still falling behind 1966. Of the 1966 groups, second repeat tests were obtained in 81.9% and third repeats in 14.1%; and in 1967 second repeats were obtained in 18.5% and third repeats in 3.89%. All of the 3 infants who were tested more than ten times in 1966 definitely had PKU, and 6 of the 8 patients in 1967 had PKU diagnosed through our program.

A total of 3 cases of PKU were diagnosed in each of the years 1966 and 1967. All three are still followed as active cases in the state, and all are still under active treatment with a low phenylalanine diet and monitoring of the blood phenylalanine level. A more detailed description of the early evaluation and treatment of the three 1966 patients was included in our previous article;¹ hence no clinical description is included in this paper.

Discussion

From the time that the Metabolic Screening Program in the Maternal and Child Health Section of the North Carolina State Board of Health was conceived until the present, we have established our plans and goals with the advice of an Advisory Committee on Metabolic Screening. This committee is made up of physicians from the Duke University Medical Center, the Bowman Gray School of Medicine of Wake Forest University, the University of North Carolina School of Medicine, the Murdoch State

Center for Mental Retardation, and the State Board of Health. By consulting with the State Medical Society and the State Pediatric Society during program planning and development, we try to solve many problems before they develop. This cooperation and close relationship has much to do with what we feel is a successful voluntary program, and why we feel that mandatory legislation, which often causes ill will, is unnecessary.

At the last general meeting of our Advisory Committee it was decided to investigate the possibility of developing automated fluorometric methods to screen patients for tyrosinemia, histidinemia, and galactosemia. We now have methods for determining blood tyrosine levels and for galactose-1-phosphate uridyl transferase in the red blood cell (test for galactosemia) which are adapted to utilize the same type of filter paper specimen on the same automated fluorometric analyser. Equipment has been ordered, and we hope to begin using the two additional tests sometime this year. Unfortunately, histidine screening has proved to be a more difficult task, and the approach may have to be gas chromatography, which may not be adaptable to a filter paper specimen.

Tyrosine screening will be performed only on infants with elevated blood phenylalanine levels, which means that the cost of this test will be extremely small. This test is of value to the physician in determining whether a child has PKU, tyrosinemia, or an immature enzyme system in general.

Galactosemia screening, like PKU screening, will include all new borns. Galactosemia is a generalized problem which is probably as prevalent in North Carolina as PKU, if not more so (crude inquiry unsupported by accurate figures). Even though most infants with galactosemia show signs of early jaundice and other highly suggestive symptoms, there appear to be three types of galactosemia with a minor variant which may result in cataracts with or without mental retardation.⁷

Under the same federal research grant which supported the development of these

tests, a gas chromatographic method for assaying other metabolic products of the phenylalanine-tyrosine metabolic pathway has been devised. This method may be an aid in further research on PKU.⁸ At this time it has not been evaluated or acted on by the advisory committee, but will be considered in the near future.

In considering screening tests other than those previously mentioned in the realm of mental retardation, we must evaluate carefully the disease incidence, financial return on invested tax funds, and ability to treat the disease if diagnosed. The factor that initially made PKU screening so attractive to the state legislature in North Carolina was the possibility of identifying and ameliorating a disease which may severely retard a child to a point that would require institutionalization, costing a quarter of a million dollars during his lifetime. At one time we felt that screening for homocystinemia might be the only other test meeting the criteria; however, the recently identified self-destructive hyperuricemia syndrome (Lesch-Nyhan disease) may well be a future addition to the program.^{9,10}

Advantages of our PKU program in addition to case detection are as follows:

1. Results can be available within 24 hours after the specimen, affording the fine control and monitoring of the patient in the initial phases of care. Continued monitoring of long-term dietary control in older PKU patients is also available.

2. The screening mechanism can be used for evaluating the families of PKU patients. It will provide overall long-term population monitoring, leading to a better understanding of the disease and supplying useful data for genetic counselling.

3. The mechanism has stimulated research in the development of additional techniques for dealing with metabolic disorders adaptable to mass screening, as discussed earlier.

Problems that still exist in the program but that have been reduced in magnitude during the past year are:

1. One sizeable hospital and a few very small ones still do not cooperate with our program or do any screening of their own.

2. Home deliveries and early hospital discharges allow a small percentage of the newborn population to go untested. Intensive nursing inservice educational programs are slowly but surely resolving this problem. In the near future we anticipate using standard form letters for distribution to parents in the hospital, advising that the infant be taken to their family physician or local health department to receive the test. A second form will be sent from the hospital to the local health department identifying the infant who has not been tested.

3. A still significant but declining number of inadequate specimens continue to be a problem. Continued consultation with the remitting facilities is slowly resolving this problem.

A word of warning might be in order here: The fact that a child has been identified as a potential PKU patient and that referral to a medical center has materialized does not necessarily mean that care will proceed smoothly. The following quotation from our earlier article still holds true:

Good rapport between the medical personnel dealing with the PKU patient and his family is vital. In our program some mothers have not been intellectually capable of carrying out other than simple orders concerning their child's care. As a result, intensive counselling was provided by the medical center physician, a consultant nutritionist, and a public health nurse. Close follow-up of these patients, once they return to their homes, is also important. Many children have become malnourished and some have died when placed on phenylalanine-restricted diets that were not carefully monitored. Frequently the local physician needs the assistance of the public health nurse and a nutritionist in carrying out the medical regimen prescribed by the medical center team. There should be direct interchange between the center and the attending physician in deciding the future course of the child's care.¹

The Chronic Disease Section of the North Carolina State Board of Health also conducts two other metabolic screening programs.

1. *Multiphasic screening* of adults over 40 years of age is now under way in four counties. A health professional (not a physician) obtains a medical history, vital signs, spirometric gauge of lung function, Papanicolaou smear in women, urinalysis, chest films, and a blood specimen, which is sent to the Laboratory Section in Raleigh for processing

in the 12-channel autoanalyser ("M-12"). This program is designed to detect subclinical disease when it may still be preventable or curable. The suspect rate of referral to physicians by the program is approximately 50% at this time.

2. Under the *Diabetic Screening Program* more than 60 county health departments participate by sending adult blood specimens to the Laboratory Section for processing by the autoanalyser. Definite criteria are listed in the protocol to aid in the identification of local patients. Some mass screening has been coordinated with the multi-agency jointly sponsored eye clinics, in which the Ames Company Dextrostix has been used.

Although our metabolic screening program was initially directed toward the prevention of mental retardation, we may have to broaden our approach to include other metabolic diseases not commonly associated with retardation, such as calcium/phosphorus abnormalities. This approach may more closely resemble the "M-12" and diabetic screening programs of the Chronic Disease Section, and it may have to involve children beyond the neonatal period. Our current Pediatric Supervisory and Nurse Screening Clinic Program, now under way in 46 North Carolina counties and planned in 13 more, lends itself well to this function.

Summary

During the first two years of phenylketonuria screening in North Carolina the program has progressed satisfactorily on a

voluntary basis: 73.9% of all newborns were tested in 1966, and 89.1% (92.9% with private hospital testing) in 1967. During this two-year period six cases of PKU were diagnosed and are currently being treated. The advantages of the program, the problems involved, and future possibilities are discussed, together with plans for the addition of screening programs for tyrosinemia and galactosemia during the coming year.

Acknowledgements

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On the first appearance of a consumption, if the patient lives in a large town, or any place where the air is confined, he ought immediately to quit it, and to make choice of a situation in the country, where the air is pure and free. Here he must not remain inactive, but take every day as much exercise as he can bear.—William Buchan: *Domestic Medicine*, or a Treatise on the Prevention and Cure of Diseases by Regimen and Simple Medicines, etc., Philadelphia, Richard Folwell, 1799, p. 130.

Psychiatric Aspects of Alcoholism

PETER H. HOLDEN, M.D.*

"Even mental disease, one of the most persistently misunderstood and mismanaged of our problems, is accorded better treatment than inebriety. The schizophrenic, the parietic, the manic depressive, provided, of course, that they make themselves sufficiently obnoxious to be legally adjudged insane, are hospitalized and given treatment in a state-supported institution, but the inebriate, who in addition may well be a schizophrenic or manic depressive, and who certainly makes himself even more obnoxious, is sternly admonished to mend his ways and is sentenced to the work house there to seek insight into his behavior."

This statement, written 25 years ago, rather cynically reflected the attitude towards alcoholics at that time; alcoholism was looked upon as a moral problem and not worthy of serious thought by the physician. Certain physical complications such as cirrhosis of the liver and peripheral neuritis were recognized and considered worthy of treatment, but helping the alcoholic to stop drinking was thought to be more the province of the church than of medicine.

During the 1940s people came to recognize that a new phenomenon was taking place—groups of alcoholics were rehabilitating themselves in the society known as Alcoholics Anonymous. Since rehabilitation of alcoholics has come to be medically respectable, and indeed the physician has been made to feel that helping alcoholics is particularly his task, and almost that this is a fairly simple office procedure. He is told that alcoholism is a disease or disorder that is medically treatable, and he knows that he can help a patient over the acute withdrawal symptoms.

The patient, however, behaves in a way seemingly calculated to frustrate and to anger everyone within range, including the physician who is trying to help him. It is natural for the physician to conclude that the patient does not want to be helped, and

that if he wants to kill himself with drink, well, that's his privilege. The only explanation of the alcoholic's destructive behavior that seems rational is the moral one—that the patient is weak-willed and can't keep away from drink; and this conclusion suggests that the minister should be the helping hand in rehabilitation, perhaps with the aid of Alcoholics Anonymous, who assert quite plainly that theirs is a spiritual program.

Because there are so many feelings involved—feelings of anger, frustration, bitterness, despair, and so on—the psychiatrist is called in to make some sense out of all this. He is the expert on psychologic problems, and he should be able to sort out all these difficulties, provide a rational explanation of the whole problem, and, it is hoped, produce a definitive cure. It is no secret that psychiatrists are no more adept at curing alcoholics than other physicians, ministers, or other alcoholics in Alcoholics Anonymous. Having said that none of these people of diverse skills have all the answers, it should be recognized that each can provide valuable help in his own way, and together they may provide the best chance for recovery in the present state of our knowledge.

Alcoholism is a problem of behavior—some people behave in an abnormal way by drinking excessive quantities of alcohol over many years in a self-destructive way. In order to understand some principles which may be applied to treatment, it may be helpful to discuss the underlying concepts of the definition and etiology.

Definition

The family physician usually has little difficulty in recognizing an alcoholic when the disorder is fully developed, but this is not so easy to do in the earlier stages, particularly because the patient is always so vehement in his denial of the diagnosis.

The World Health Organization's definition is as follows:

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"Alcoholism is a chronic disease, or disorder of behavior, characterized by the repeated drinking of alcoholic beverages to an extent that exceeds customary dietary use or ordinary compliance with the social drinking customs of the community, and which interferes with the drinker's health, interpersonal relations or economic functioning."

This is probably the best definition there is, but it is much too vague to be applied to any specific case. One of the major problems of definition lies in differences of patterns and habits of drinking in different cultures. What is considered acceptable drinking in one culture may be thought to be pathologic in another. For example, the French farm worker drinks large quantities of wine daily, starting with some at breakfast and drinking more at intervals throughout the day. This is considered to be normal drinking in that culture, but if this French worker were put on an American farm he could immediately be labeled an alcoholic. The following comments, however, will apply only to the situation in North America.

Hoff¹ has added to the definition certain more practical concepts.

1. There is loss of control of alcoholic intake—the victim finds himself drinking when he intends not to drink, or drinking more than he had planned.

2. There is functional or structural damage—physiologic, psychologic, domestic, economic, or social.

3. Alcohol is used as a kind of universal therapy, as a psycho-pharmacologic substance through which the problem drinker attempts to keep his life from disintegrating. An addition to this concept might be appropriate. Many social drinkers get drunk, sometimes quite frequently, and experience hangovers, but it never occurs to them to see a doctor for relief. So a person who sees a doctor because he requires relief from hangovers or believes he may have injured himself with alcohol is almost certainly an alcoholic.

Etiologic Concepts

Adverse childhood experiences

All alcoholics have emotional problems

and create emotional problems for those around them, and it is logical to think that emotional difficulties have created the condition. The majority of alcoholics have experienced deprivation in childhood. Family relationships were grossly distorted—for example, mother and father were always fighting or were divorced; father may have been cruel or was himself an alcoholic, or mother was overindulgent, and so on. The future alcoholic was emotionally stunted during the period of growth and did not have the opportunity for normal emotional development. As a young adult he tends to be passive and depends on other people to do things for him; he cannot tolerate frustration readily, and has many other neurotic traits. As a consequence of all this, alcohol has a special meaning for him, and he uses it to excess.

Unfortunately there are serious deficiencies in this theory. Attempts have been made to describe the pre-alcoholic personality, but these efforts have not been at all successful in predicting who turns out eventually to be an alcoholic. Furthermore there are many people with the qualities described who remain neurotic social drinkers all their lives. In order to prove why one neurotic becomes an alcoholic while another remains a social drinker, it has to be shown not only that a certain factor or factors are common to alcoholics, but in addition that this factor or factors are absent in the social drinker, or that the social drinker has another factor which protects him from becoming an alcoholic.

Psychoanalytic concepts

Psychoanalytic formulations are briefly described as follows. Alcoholism is classified with the addictions—drug addiction, kleptomania, pyromania, and the like—the common factors being dependence on a drug or practice which provides pleasure and at the same time relieves anxiety. Such dependence results from developmental failure, with the addiction serving as a compromise solution protecting the individual from the graver consequences of failure, such as suicide, psychosis, or asocial or criminal behavior.

The analysts assert that the developmental failure is attributable either to fixation at

various stages of emotional growth or regression to a previously outgrown stage. Behavior, personality, severity of the drinking problem, prognosis, and treatment methods are contingent upon the patient's state of fixation or regression. The earlier the developmental stage at which an individual has been arrested, the more severe his drinking problem and the poorer his prognosis, if he becomes an alcoholic. Persons who have achieved emotional maturity but have regressed under the impact of unfavorable life circumstances may be only temporarily affected, and are more likely to return to their previous level of social and personal functioning when they stop drinking. Fixation may be at the oral stage, with pleasure in the bottle and the feeling of satiation, followed by somnolence and unconsciousness. This group of alcoholics exhibits intolerance to frustration, irresponsibility, and emotional lability. Fixation at the anal stage is exemplified by aggressiveness, cruelty, and rebelliousness.

Kubie² emphasizes that the paths leading to alcoholism are varied, as are the predisposing personality types and the precipitating factors. Nonetheless the end result is the same. Alcoholism—like any end-stage in a disease process—masks its beginning under the guise of similarity achieved by the most dissimilar means. The logical fallacy is to deduce etiology from the outcome.

The foregoing is descriptive and set within the psychoanalytic frame of reference, but it does not help to resolve the problem of etiology. In fact the analysts disarmingly assert that there is no such thing as a single cause and that they merely explain the alcoholic's personality, mental defense mechanisms, and underlying conflicts—in other words they "understand" the alcoholic. Nevertheless, implicit in their attitude is the assumption that alcoholism is psychologically determined. Their insights can help us understand the alcoholic as he is, but do not help us understand why he uses excessive drinking as an attempted solution to life problems.

Alcoholism as a personality disorder

Another way of classifying alcoholism is

to put it in the category of the psychopathic or so-called personality disorders. These are defined as disorders characterized by developmental defects or pathologic trends in personality structure, with minimal subjective anxiety and distress. The psychopath does not manifest any symptoms, and is identified by his behavior pattern of antisocial activities. Psychopaths seem to suffer a higher rate of alcoholism than non-psychopaths, but the majority of alcoholics do not have the characteristics of psychopaths. The alcoholic repeatedly commits many antisocial acts, but unlike the psychopath, the alcoholic is filled with anxiety and remorse for his antisocial activities. He is in the throes of a compulsive need to drink which he is unable to control, and he is bitterly ashamed of the consequences of his behavior.

It may be useful to see the alcoholic as a segmental psychopath—that is, his behavior is psychopathic in that segment of his life that is centered on drinking. In the alcoholic's earlier years the segment is quite small. It gradually enlarges as his drinking affects more areas of his life, and finally affects his life totally, when he may be described as a complete psychopath. But this is a consequence of his inability to control his drinking, and does not signify that he was a psychopath before he became an alcoholic. In other words, there is a progressive deterioration of personality as the alcoholic grows older.

Other concepts

From the foregoing it does not seem that the question of etiology can be answered in terms of childhood experience, psychoanalytic formulations, or seeing the alcoholic as a psychopath. None of these aspects seem to provide any clear guidelines towards etiology, and yet emotional problems are very clearly involved. Most physicians have met the widow who rarely drank while her husband was alive but after his death started to drink heavily until her drinking was out of control. In this instance there seems to be a clear causal relationship between the widow's grief and her drinking, but this does not explain the relationship between her grief and her *loss of control* of drinking.

which is the core of the problem of etiology.

There is an unknown factor which, in some people, precipitates loss of control. This factor could be psychologic, as yet undetermined, or it could be physical—and there is some indirect evidence suggesting a physical factor in etiology. A high proportion of alcoholics are the children of one or two alcoholic parents; this suggests the presence of a genetic factor. Kullman³ has shown that there is a genetic factor in the etiology of schizophrenia, so it is possible that genetics may operate in alcoholism too.

There are some interesting cultural differences in the incidence of alcoholism, suggesting a genetically determined disorder. Jews have a very low rate of alcoholism, yet experience the same rate of mental illness, suicide, and drug addiction as gentiles. Americans of northern European ethnic background are far more likely to become alcoholics than are Americans of Mediterranean ancestry, even though the families have lived in the States for many generations.

It has been suggested that the etiology of alcoholism is derived from three factors interacting together in one person—a psychologic or personality factor, a physical factor, and environmental stress. While this theory is quite speculative, it does seem to offer the possibility of a more adequate explanation of the disorder than a psychologic theory alone.

Role of the Physician in the Treatment of Alcoholics

In the final part of this paper some suggestions are offered to the family physician which may be helpful, not so much in directly treating alcoholism, but in indicating the kinds of ways that a physician can manage the alcoholic on sound psychologic lines.

The use of medication, particularly tranquilizers, is of limited value, and there is a real risk of drug addiction with barbiturates and meprobamate. It has never been reported that these drugs have ever stopped an alcoholic from drinking, though they may be helpful during the withdrawal period. Antabuse can be a very helpful drug for some

alcoholics who can accept an outside agent to prevent themselves from drinking. It is important to present the drug to the patient accurately so that he is under no misunderstanding as to the effect of alcohol in conjunction with the drug. Lack of intelligence on the part of the patient and a history of impulsive behavior should be considered by the physician as possible contraindications to the use of Antabuse; and there are, of course, medical contraindications also.

Period of denial

Treatment of the alcoholic may be seen as a series of separate interactions between the physician and the alcoholic and his family. The first interaction might be described as one of denial. The patient is drinking heavily and regularly but has not suffered any serious physical or social consequences. His home life is probably somewhat disturbed by this time, but the family is holding together, and the wife has not yet reached the point of desperation when she seeks outside help.

At this stage the patient rarely seeks medical help, because he denies that he is having any difficulty. The physician, however, may see the patient for a check-up or some condition unrelated to drinking, and he may suspect what is going on. Direct confrontation will produce a denial from the patient, and perhaps some anger, and the door is slammed shut on the whole subject. But sometimes it is possible to approach the problem obliquely and lay the foundation for helping the patient at a later time.

There are a number of questions which the physician can ask the patient without giving offense, and thereby obtain a clearer picture of the patient's drinking habits. Does the patient sometimes drink more than he intended? How often does this happen? Does he often take an eye-opener—a drink first thing in the morning? Does he have blackouts—periods of amnesia—during a heavy drinking period? Does he prefer to drink alone now, whereas some years ago he drank only with other people? Has he ever been charged by the police with an offense related to drinking? Has he ever missed time at work—perhaps on a Monday—be-

cause of a hangover? Does he get angry when his wife reproaches him about his drinking? The physician is more likely to get truthful answers to these questions than to the question, "How much do you drink?" and affirmative answers to several of them should confirm the diagnosis in the physician's mind.

The physician should tell the patient what he thinks in suitably worded terms, much in the same way that he would tell a patient that he has diabetes or arthritis. The patient should be told that he is developing a drinking problem and that if he needs help with it now or in the future, the physician will be available. It is very likely at this stage that the patient will refuse help, but later on when he is suffering a great deal more, he will remember the physician's offer, and then come for help.

Acute medical phase

The next interaction is one of acute physical illness. The patient is suffering from acute intoxication and withdrawal symptoms, and often enough the wife calls requesting help. It is important to make sure that the patient is requesting the physician's help, and also that the wife is not calling because her husband is violent or threatening violence, in which case the police should be summoned. After emergency medical aid is given, the patient should be seen a day or two later in the physician's office, when a full discussion of the situation can take place. The physician may recommend some special facility for treatment or rehabilitation, joining Alcoholics Anonymous, or follow-up by the physician himself. The value of Antabuse should be presented to the patient.

Many alcoholics are admitted to a general hospital with a diagnosis of acute gastritis, gastrointestinal bleeding, liver disease, or other diagnosis, and the fact that the illness is a complication of excessive drinking is scarcely mentioned. Many insurance companies will not pay for the treatment of acute intoxication or alcoholism, and this makes the physician rather cautious in recording the diagnosis; but he need not be at

all reticent in discussing the diagnosis with the patient, who is probably very frightened and willing to listen carefully to the physician's suggestions. The patient can be told that he is an alcoholic because his excessive drinking has caused medical complications which have brought him to the hospital, and that further drinking will lead to more illness. It is not hard to reach a member of Alcoholics Anonymous who will be glad to discuss their program while the patient is still in the hospital. This moment in the alcoholic's life is a particularly good one for some firm guidance by the family physician.

Dealing with the Alcoholic's Family

Another situation commonly encountered by the physician is when the wife comes to him asking what she should do. The wife either blames the whole situation on her drinking husband, or is inclined to blame herself for provoking her husband into his drinking bouts, which often enough is what the alcoholic tells her she is doing.

There is no point in the doctor's becoming involved in a discussion about who is to blame. The important thing at this moment is to discuss with the wife what steps she can take to look after herself and her children. She has to isolate herself and the children from the alcoholic, and separation, temporary or permanent, may be the best solution. She should be told quite clearly that there is nothing that she or the doctor can do to stop her husband from drinking, and that she had better make plans with the expectation that her husband will continue to drink indefinitely. The alcoholic may promise to quit drinking if his wife does this or doesn't do that, but the wife must ignore his promises and make plans for herself and her children. The alcoholic may stop drinking eventually, but only in response to an inner desire to do so, and persuasive arguments by well-meaning or authoritative people are of uncertain value, to say the least.

In some cases the alcoholic is physically violent towards his wife and children, and the wife complains bitterly to her doctor, relatives or friends, but does not call the

police or leave her husband, even after many episodes. She should be told that she is helping neither her husband or herself by doing nothing, and on the contrary is actually perpetuating her husband's drinking. If a wife leaves her alcoholic husband, he may or may not stop drinking, but if she remains with him it is almost certain that he will continue to drink, not because she provokes him into drinking, but because she tends to protect him from its consequences. She has to learn to see her husband's illness objectively as a behavior disorder which no one except her husband can control, and that her role is to isolate herself as far as she can until he changes. Emotional scenes with reproaches and pleadings and promises lead to nothing except further scenes of the same sort.

A variant of this situation is when the child of an alcoholic comes to the physician appealing for help and possibly for protection against the alcoholic parent. In cases of obvious abuse the case can be referred to the local welfare agency, but where the abuse is not physical but is emotionally crippling, referral is not so easy. Since it is hard for a child to believe that the alcoholic parent is not just mean, selfish and indifferent to the needs of the family, the doctor should try to explain that the disorder is a form of sickness. It may be possible to help the child accept isolation from the alcoholic parent by talking to the sober spouse and involving the child in activities outside the home, such as church, Scouts, school sports, and so on.

The physician's role at this stage is that of supporting the family and helping them view the situation objectively. If the alcoholic asks for help, he should be given it, but limits should be set. For example, the alcoholic may have received treatment by the physician for acute intoxication or withdrawal symptoms. The patient is sincerely grateful for the help and it does not take him long to come to rely on the doctor to pull him out of a drinking episode. Soon the doctor is in the position of helping to perpetuate the patient's drinking. There is nothing wrong with the physician's setting conditions on his help: he will help if the patient joins Alcoholics Anonymous or accepts treatment from some specialized agency or other source. In other words the physician will help the patient if the patient will accept some responsibility for doing something for himself. Coersion, if applied in the right way, can be helpful in directing the patient towards treatment.

Summary

Alcoholism is defined with reference to various contemporary concepts. The etiology is discussed and evidence presented to suggest that more than one factor may be in operation. The management of the alcoholic by the physician is discussed in a number of frequently encountered family situations.

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The temper of mind ought to be carefully attended to. Fear, anxiety, and a fretful temper, both occasion and aggravate diseases. In vain do we apply medicines to the body to remove maladies which proceed from the mind. When it is affected the best medicine is to soothe the passions to divert the mind from anxious thought, and to keep the patient as easy and cheerful as possible.—William Buchan: *Domestic Medicine, or a Treatise on the Prevention and Cure of Diseases by Regimen and Simple Medicines, etc.*, Philadelphia, Richard Folwell, 1799, p. 106.

Full-Thickness Grafts in Deep Lamellar Beds

J. J. JOHNSON, M.D., F. W. STOCKER, M.D., AND S. D. MCPHERSON, JR., M.D.

A number of surgical techniques have been employed for the treatment of edematous and vascularized corneas. In recent years attention has been centered on therapeutic approaches to relieve symptoms and arrest progressive deterioration of eyes thus affected. Although, generally, these procedures have carried little inherent risks, they usually sacrifice the objective of a good visual result. In 1959 Hallerman¹ reported good therapeutic results from the use of full-thickness grafts in deep lamellar beds. In 1963 McCulloch² reported good results from the same technique, and in the discussion of his paper, Stocker³ and McPherson⁴ also related favorable experiences. Subsequently, little has been written on full-thickness grafts in lamellar beds for the treatment of edematous and vascularized corneas. Because initial reports were encouraging, it was decided to review the long-term follow-up of patients previously operated on by this technique at McPherson Hospital.

Rationale and Experimental Work

Figure 1 shows diagrammatic representation of a full-thickness graft in a deep lamellar bed. The desired effects are two-fold. First, it is hoped that diseased corneal endothelium will be re-enforced so as to retard edema formation by the excessive seepage of aqueous humor across the diseased endothelium. Since extensive endothelial damage is frequently present⁵ and large penetrating grafts are not feasible,⁶ large lamellar grafts would seem desirable for providing re-enforcement throughout the internal diameter of the cornea. Partial-thickness lamellar grafts have not proved effective in this re-enforcement.² Full-thickness grafts in deep lamellar beds have been shown to be more effective. Experimental work² has confirmed this by finding that in edematous recipient rabbit corneas with destroyed endothelium, the grafts remain

surprisingly clear. They have remained clear despite the consistent observation that donor endothelium disappears soon after grafting. Why these grafts remain clear in the absence of both recipient and donor endothelium is poorly understood. It has been suggested that the barrier effect is mechanical and is the result of two Descemet's membranes, which are in some instances facilitated by the formation of a fine connective tissue membrane at the graft-recipient interface.³

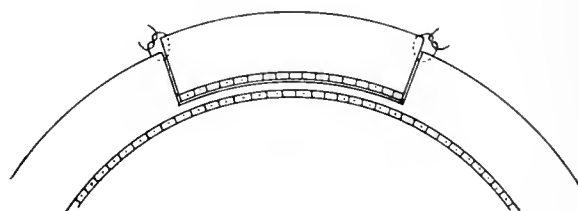


Fig. 1. Schematic drawing of full-thickness corneal graft in lamellar bed of the recipient cornea.

Secondly, it is hoped that a large-diameter full-thickness graft in a lamellar bed will resist a homograft reaction. It is thought that lamellar grafts are less sensitizing than penetrating grafts.⁷ This is presumed to be due to the less direct accessibility of lamellar grafts to aqueous humor and hence the role of aqueous humor as a transport media of factors favoring a graft reaction. It is hoped that Descemet's membrane of the full-thickness graft in a lamellar bed enhances this relative inaccessibility. Furthermore, the adverse factor of extensive corneal vascularization can be largely removed with a large and deep lamellar dissection as required by the large-diameter full-thickness graft in a lamellar bed. Though significant marginal vascularization may remain, it is hoped that extensive resection of diseased cornea and the "re-enforcement" of diseased endothelium will facilitate adaptation of the graft below the total threshold of variables that would otherwise give a homograft reaction. It is doubtful that experimental work to support or contradict the foregoing assumption exists.

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Table 1
Clinical Summary of Cases

Patient	Age	Sex	Preoperative Diagnosis	Duration of Follow-up (Months)	Therapeutic Result	Optical Result	Preparatory Result
1.	53	F	Aphakic bullous keratopathy	18	Yes	No*	?
2.	64	F	Aphakic bullous keratopathy	27	Yes	No	Yes
3.	38	M	Old corneal trauma Chronic herpes Bullous keratopathy	54	Yes	No	?
4.	69	M	Aphakic bullous keratopathy Advanced Fuch's dystrophy	12	Yes	No	?
5.	37	F	Old corneal trauma Chronic herpes Post conjunctival flap	66	Yes	Yes*	?
6.	33	F	Aphakic bullous keratopathy Secondary glaucoma—uncontrolled Glaucoma surgery x's 2 Chronic granulomatous uveitis	11	No	No	No
7.	84	M	Aphakic bullous keratopathy	36	Partial*	No	?
8.	57	M	Aphakic bullous keratopathy Post penetrating keratoplasty for advanced keratoconus	7	No	No	No
9.	66	F	Aphakic bullous keratopathy	48	Yes	No	?
10.	19	M	Aphakic bullous keratopathy Post penetrating keratoplasty Post traumatic cataract surgery Post glaucoma tube procedure	54	Partial*	No*	?
11.	78	F	Marginal corneal dystrophy	7	Yes	Not applicable	Not applicable

*Refer to case history for details

Material and Methods

The usual sterile conditions and local anesthesia are employed. With an 8 to 11 trephine set at 0.6 mm an outline incision is made on the recipient cornea. Using a Gill knife and Gill-Beaver blade, a deep lamellar dissection is carried out as close to Descemet's membrane as possible. Either silica-gel dessicated donor material, reconstituted in Neosporin, or fresh material is used. An 8 to 11 mm full-thickness graft is cut on a paraffin block. The graft is sutured into the deep lamellar bed with approximately 14 interrupted sutures of 6-0 plain collagen or 7-0 black silk material. The usual streptomycin-penicillin solution is injected subconjunctivally. The eye is then dressed with Neosporin ointment.

Clinical Data and Results

Table 1 gives pertinent clinical data of 11 patients who received a full-thickness graft in a deep lamellar bed at McPherson

Hospital. Follow-up ranged from 7 to 66 months with a mean of 33 months. Case 11 involved a patient with advanced marginal corneal dystrophy, and the graft produced a perfect therapeutic result for the short duration of follow-up obtained prior to her death. The remaining ten patients represented the usual poor prognostic cases associated with bullous keratopathy, vascularization, or both. Eight of 10 had had previous cataract surgery; the remaining 2 had a history of old corneal trauma and involvement with chronic herpes simplex infection. Other adverse circumstances in these 10 cases included prior penetrating keratoplasties in 2 patients, previous conjunctival flap procedure for corneal perforation in 1 patient, chronic granulomatous uveitis in 1 patient, and secondary glaucoma and past glaucoma surgery in 2 patients.

There were many postoperative complications relating to the graft. Transient clefts between donor and recipient corneas occurred in 3 patients. Persistent clefts were

present in 4 patients. Cleft hemorrhages occurred in 4 patients. The diagnosis of an infected graft was made or entertained at some time during the postoperative course in 4 patients. Limited necrosis and absorption of the graft occurred in 1 patient.

A therapeutic result was considered successful if the eye was made quiet and comfortable as a result of the surgery. Despite the postoperative complications in this series, 7 patients had good therapeutic results, and in 2 others the results were fairly good. A good visual result did not necessarily accompany a good therapeutic result, and over-all the visual results in the series were unimpressive. In approximately half of the patients, scarring or opacification of the graft relating to postoperative complications accounted for the poor visual results. In most of the remaining patients such factors as scarred recipient beds, old central chorioretinitis, or glaucoma precluded good vision despite grafts which were largely or partially clear. The preparatory result of the graft referred to its effectiveness in preparing or improving the condition of the eye for subsequent penetrating keratoplasty and an ultimate visual as well as continued therapeutic success. The preparatory results in this series went largely unanswered in that only two patients had subsequent penetrating keratoplasty. However, in these two patients the preparatory results coincided with the therapeutic results, one being a failure and the other a success.

Illustrative Cases

Case 1

The patient was a 53-year-old woman with a diagnosis of aphakic bullous keratopathy and old central chorioretinitis. She did well until the fifth postoperative month when she was noted to have central fungal ulcer—probably iatrogenically induced. By a misunderstanding, the patient had been treated with topical steroids for several weeks. The ulcer cleared nicely with treatment. There is a residual scar, but otherwise the graft has remained clear and the eye quiet through 18 months of follow-up. Vision was light perception preoperatively, ability to count fingers postoperatively.

Case 2

The patient was a 64-year-old woman with severe

aphakic bullous keratopathy. Preoperative vision was light perception with projection. The graft was clear three weeks following operation, with vision correctable to 5/70. Though the eye continued to be comfortable, the graft slowly became opaque or sclerosed and vision deteriorated. The graft was opaque 27 months following operation. At this time, a 7 mm penetrating graft was applied. It has remained clear for 15 months. Vision corrects to 20/80.

Case 3

A 36-year-old man gave a history of old corneal trauma to his right eye. A chronic herpetic infection had developed, with ultimately bullous keratopathy and extensive vascularization. The graft was clear 3½ months following surgery.

Vision subsequently improved to 20/40 with correction. However, nine months postoperatively a delayed interlamellar hemorrhage occurred in the infero-nasal quadrant of the graft. It extended to involve the central cornea, with a remarkable decline in vision. Subsequently, it evolved into a yellowish mass 12 to 14 months postoperatively. Nineteen months postoperatively, the yellowish mass faded, resulting in a stable white hazy scar. The scar is little changed 4½ years later. Otherwise the graft is clear and the eye quiet. Because of the scarred graft, vision remains at 20/400 as it was preoperatively.

Case 4

This patient was a 69-year-old man with advanced Fuch's dystrophy and aphakic bullous keratopathy following cataract extraction. Three weeks following grafting, a pneumococcal infection developed at the graft recipient interface. The infection cleared well with treatment, but with some residual vascularization at the interface. One year following operation, the graft was clear. Vascularization can still be seen at the interface. Vision was 20/400 preoperatively. It was not recorded on his last visit and the patient died prior to further follow-up.

Case 5

The patient was a 37-year-old woman who three years previously had had a conjunctival flap procedure for corneal perforation. There was a history of old corneal trauma and chronic herpetic infection. The cornea was opaque with the vascularized conjunctival flap. The graft did well postoperatively for several months, then limited necrosis and absorption of the inferior central one third of the graft occurred, possibly relating to infection. Three and one half years following operation the eye was quiet and comfortable, there was some opacification of the graft, and the inferior central one third of the graft was thin but clear. Though not dramatic, the patient had a helpful improvement in vision. Now five and one-half years after operation, the clinical status remains unchanged. Preoperative vision was limited to light perception. Postoperative vision has remained around 5/70 without correction.

Case 6

A 33-year-old Oriental woman presented with apha-

kie bullous keratopathy of the right eye and chronic granulomatous uveitis associated with secondary glaucoma refractory to medical and surgical treatment. Surprisingly, the full thickness lamellar graft was clear with vision correctible to 20/70 four months postoperatively. Subsequently, the graft failed from both the therapeutic and visual preparatory standpoint in this patient, probably because of the uncontrolled glaucoma. A section of the full-thickness lamellar graft plug removed at time of penetrating keratoplasty showed a cleft between donor and recipient cornea. Interestingly, guttata could be seen on donor Descemet's membrane.

Case 7

An 84-year-old man had severe aphakic bullous keratopathy following cataract extraction. There was a persistent cleft between donor and recipient cornea postoperatively. The graft remained clear for a year, but thereafter gradually became clouded, with sclerosis and edema. Two and one-half years postoperatively, there was a superficial ulcer of the graft which cleared readily with treatment. Three years after operation the graft was opaque, there were no bullae, and the eye was quiet and comfortable. Vision improved only slightly from perception of hand motion preoperatively to counting fingers postoperatively.

Case 8

This patient was a 57-year-old man with aphakic bullous keratopathy and vascularization of a previously grafted eye. He had a past history of marked keratoconus. The graft was a therapeutic failure within a matter of months following surgery, and as such probably also represented a preparatory failure. Vision was unimproved.

Case 9

This patient, a 66-year-old woman, underwent corneal grafting because of aphakic bullous keratopathy. Postoperatively, vision was unimproved, probably because of opacity or scarring of recipient's cornea. With over four years of follow-up, the eye has remained quiet and comfortable, and the graft reasonably clear, smooth, and consolidated. Preoperative vision was 20/400 and postoperatively there has been no significant improvement.

Case 10

A 19-year-old boy had sustained enucleation of the right eye and severe trauma to the left, as a result of a chemical explosion six years previously. Examination disclosed aphakic bullous keratopathy, heavy corneal vascularization, and calcareous degeneration of the previously grafted left eye. There were also numerous areas of scleral atrophy and evidence of a past tube procedure for secondary glaucoma. Following the full-thickness lamellar graft, there was a cleft hemorrhage and then a persistent cleft. The graft became opaque, with sclerosis and edema. On more than three years' follow-up, the eye remains comfortable and essentially quiet. Preoperative vision was

light perception with projection. The latest visual tests showed light perception with faulty projection.

Discussion

The results of this series approach those previously reported by Hallerman¹ and McCulloch.² The 60% to 80% therapeutic efficacy in the series is good considering the adverse and desperate circumstances encountered in some patients. Overall, the therapeutic results of the full-thickness graft in a deep lamellar bed are perhaps not quite as good as, but appear to approach, those of therapeutic techniques such as Gunderson's conjunctival inlay flap procedure⁸ and the method of Saleras.⁹

The visual results in the series were generally unimpressive as with other therapeutic techniques. However, it would seem that the rationale of the full-thickness graft in a lamellar bed is more in keeping with serviceable visual results than the rationale of the conjunctival flap procedure or the method of Saleras. In large part, the visual results of this series of patients were poor as a result of factors not necessarily inherent in the procedure.

Theoretically and perhaps idealistically, the large diameter full-thickness graft in a lamellar bed should be relatively effective as a preparatory procedure for penetrating keratoplasty. It may allow for a re-enforced recipient endothelium, and less vascular and opaque recipient corneal margins for a subsequent smaller penetrating graft within its confines. Two patients in this series had subsequent penetrating keratoplasty, and the preparatory result of the full-thickness graft in the lamellar bed coincided with the therapeutic result. Certainly it cannot be concluded that all therapeutic successes will be preparatory successes. On the other hand, from the clinical descriptions of decreased corneal vascularity and edema in most of the therapeutic successes, one cannot help but assume that the patients are generally improved candidates for penetrating keratoplasty.

Postoperative complications

Table 2 lists postoperative complications and size and type of donor material in order to try to correlate these variables with the

Table 2
Complications and Results

Patient	Cleft	Postoperative Complications			Therapeutic Result	Size and Type Donor Material
		Infection	Hemorrhage	Necrosis		
1.	Transient	Yes	Yes	No	Yes	11 mm, preserved
2.	No	No	No	No	Yes	11 mm, preserved
3.	Transient	No	Yes*	No	Yes	10 mm, preserved
4.	No	Yes	No	No	Yes	9 mm, fresh
5.	Transient	Yes*	No	Yes*	Yes	11 mm, preserved
6.	Persistent	No	Yes	No	No	8 mm, fresh
7.	Persistent	Yes	No	No	Partial*	11 mm, fresh
8.	Persistent	No	No	No	No	10 mm, preserved
9.	No	No	No	No	Yes	11 mm, preserved
10.	Persistent	No	Yes	No	Partial*	10 mm, preserved
11.	No	No	No	No	Yes	4 x 10 mm, preserved

*Refer to case history for details

therapeutic results. As can be seen, transient clefts between donor and recipient cornea in three patients, infection in four patients, and limited necrosis and absorption of the graft in one patient seemed to have no bearing on the therapeutic result. On the other hand, persistent clefts and possibly cleft hemorrhages may have been of consequence. It is logical that persistent clefts would be detrimental in that they usually communicate with aqueous, and as a result there is a breakdown in the consolidation of the posterior layers and hence the desired "leakproof" effect.

Paufique¹⁰ states that postoperative hemorrhages at the interface of donor and recipient in lamellar keratoplasty is usually transient and without ill effect. This is possibly more applicable to cases in which recipient beds are normal. In the patients of this series, the recipient beds were more prone to be vascularized and diseased. As such, hemorrhages might have been more severe and it is conceivable that hemorrhages predisposed to persistent clefts two patients of this series.

In this series infection or necrosis had no detrimental effects on the therapeutic results. However, the visual results were in part impaired because of residual scarring and irregularity. The relatively high incidence of infection in these patients may be more apparent than real. In one patient it was probably iatrogenically induced; in another, the process could have been purely necrosis; and in still another, infection was delayed by more than two years, and it was

in fact minor and amenable to treatment. Regardless, it is known that lamellar grafts tend to become infected more readily than penetrating grafts, presumably because of the less direct accessibility of the graft to the antibody content of aqueous. This effect might be compounded by the addition of Descemet's membrane with the full thickness graft in lamellar bed. At any rate, infections in lamellar grafts tend to remain localized and are not usually a threat to the eye.

Donor material

Regarding correlation of size and type of donor material with therapeutic results, no definite conclusions can be reached from this study. Theoretically, a large graft measuring up to 10 to 11 mm in diameter would seem ideal for reasons already mentioned. In regard to type of donor material, preserved material might be preferable.¹² It is thought to be less sensitizing. Also, the endothelium of fresh donor material is apparently not beneficial since it vanishes, and furthermore, it has been speculated that it might predispose to cleft formation or cystoid spaces at the graft-recipient interface.¹

Finally, in discussing the full-thickness graft in lamellar bed and therapeutic techniques in general, it cannot be forgotten that such techniques come into being because of poor results from penetrating keratoplasty. Fortunately, the last few years have seen technical refinements in both penetrating keratoplasty^{13,14} and ingenious techniques utilizing artificial material.^{15,16}

Some of the reports have been promising. If these approaches have the potential to give good therapeutic and visual results from single procedures, we can hope that the need for therapeutic techniques will eventually decline. Nevertheless, they will always be useful for last resort procedures.

Summary and Conclusions

Some theoretical, clinical, and experimental aspects of the full-thickness graft in a deep lamellar bed have been discussed. The therapeutic results appear to be good despite a high incidence of postoperative complications in this series. Visual results are generally poor as with most therapeutic techniques.

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Persons afflicted with low spirits, wind, weak nerves, and other hypochondriacal affections, generally find more benefit from the use of solid food and generous liquors, than from all the cordial and carminative medicines which can be administered to them. The scurvy will sooner yield to a proper vegetable diet than to all the antiscorbutic remedies of the shops.—William Buchan: *Domestic Medicine, or a Treatise on the Prevention and Cure of Diseases by Regimen and Simple Medicines, etc.*, Philadelphia, Richard Folwell, 1799, p. 107.

Coping with Medicine's New Climate

PHILIP LESLY*

We hear a lot about new challenges facing medicine, and our leaders spend much of their time seeking means of meeting them. We can expedite our quest, and assure command of the changing patterns, through an objective understanding of the social and psychological climate facing medicine today, and a positive program to assume leadership in this climate.

Understanding the forces and trends in society that confront medicine is as important as proper diagnosis.

We are living in what has been called the Age of Rising Aspirations, but can more accurately be called the Age of Unreasonable Expectations. Marvelous changes have come so fast that many people, especially those who didn't experience the trials of adult life before 1946, now feel "miracles" can be had just by wanting them belligerently enough.

Humanity, which often passed generations hoping for single signs of advancement or alleviation of evils, now clamors for immediate solutions to massive problems.

This has destroyed the patience and discipline necessary to achieve any real accomplishment, and it has been abetted by public officials who—attuned to the public's psyche—promise easy attainment.

Our progress has heightened the great American illusion of perfectibility; many people now want instant transmutation of what *should* be into what *must* be.

Medicine, particularly, has problems created by its own success. Until our own generation, man lived with knowledge that death could strike at any time. The great strides in holding off disease and overcoming maladies have made everyone urgently want what medicine can offer.

Progress, Change, and Challenge

For a host of reasons, the demands on the capacity and resources of medicine have

multiplied by quantum leaps during the past generation. We keep people alive who once would have died—but they need constant medical care. We provide many services, from conception control and hormone supplementation to repair of accident injuries, that have become possible only recently. The wonders of what medicine can do have attracted many who not long ago gave little attention to medical care. Yet with all the multiplying of demand, the delivery of health care—involving primarily human skills—has been able to increase only arithmetically.

No subject is more capable of arousing emotions than life and health; now people demand, by coercion if necessary, that the best medical care be *given* to them. Of course, this is unreasonable because it takes time and effort to catch up with such surges of demand. But remember that throughout history in times of famine when no one could increase the supply of bread, people rioted in demanding bread.

Inevitably, when we bring about progress we create change, and change then challenges our successes because the patterns for our success no longer fit the bright new conditions we have created. The great problems of our age are how to create, live with, and *direct* and *master* change rather than have it overwhelm us and destroy the fundamentals that made our success possible.

Better education has also created problems: Almost everyone has the "little learning" that Alexander Pope said was a dangerous thing. Believing in their competence to judge matters that are beyond their capacity, people demand control over things in government and in private sectors that they do not really understand. In medicine, people now know just enough to be demanding and critical, and to expect too much.

Public Relations—A Bridge to Change

Because of these changes and conditions, the medical profession is now faced with defending itself on other people's terms. In this situation, we must stoically assess what

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needs to be done and, with the well-known dedication of medical people, do these things.

This is where public relations come in. At its best, public relations is a bridge to change. It is a means to adjust to new attitudes that have been caused by change. It is a means of stimulating attitudes in order to create change. It deals with the problems of communication between changing groups that are rapidly being made different from each other.

Public relations gives each group the vital benefits of objectivity—of being able to see the whole of our society together, rather than from one intensified viewpoint. It provides judgment, creativity, and skills in accommodating groups to each other, based on wide and diverse experience. These forces, if they perform, are vital in a world that seems to tear itself apart, to set one group against another, and to destroy understanding.

Therefore, our analysis and program recommendations for medicine provide the bridge to our changing climate. The policy and plans approved by the AMA House of Delegates in San Francisco in June have this basis:

The AMA is dedicated to fostering optimum health care for the American people, and believes this can best be provided through the system of incentives and freedom for physicians.

Now, when all aspects of American life are under pressure, the health of the public depends on an orderly pattern of development in our health-care system.

Health care is a major aspect of the nation's overall climate of urgency in turning expectations of excellence into possession of the finest—in education, safety, health care, government services, and many other fields. Medicine no longer functions in the sober privacy of its scientific and ministering roles. Health and life are the most urgently desired expectations, and they therefore arouse the most emotion-laden concerns and scrutiny.

This situation calls for great statesmanship by the leadership of the profession, to avoid its being swept into destructive chan-

nels by the tidal wave of demand for its benefits. Doctors, trained to concentrate on facts and avoid the distortion of emotion and illusion, often find it difficult to realize that the emotional climate surrounding health and life is as important as are the facts in determining what the public and government feel about the medical profession. Because emotion is a potent part of the makeup of people's attitudes, facts alone cannot sway them.

Balancing Expectations with Realities of Health Care

Developing equilibrium between the complex realities of health care and the burgeoning expectations of the public and government involves these considerations:

1. Health care today is a multifaceted and intricately interlocked *system*. The ecology of any system is destroyed when undue pressure or demand is exerted at one point. Development of the system requires that development of all its segments be proportionate rather than, as in the case of Medicare and Medicaid, having segments of demand applied without due consideration for the pace of availability of manpower and resources.

2. The pressure of demand is a great tribute to medicine, for it comes from the people's awakening to how much the medical profession can do for them. This is the consequence of the profession's achievements, and meeting it is a part of medicine's responsibility in making its progress truly effective.

3. Medicine's startling rate of progress must continue, and its future progress is certain to create more change. The challenge is to master and direct change rather than to be overrun by it, or to have others take up the role of imposing accommodations on the medical system.

4. Informed projections indicate that the health team of 1975 may include 20 auxiliary persons for each physician. It is estimated that to meet reasonably the health care expectations of all the people would require 600,000 practicing physicians. Thus it would require more than 12,500,000 health care personnel, or one for every seven employed

persons in the country. This is patently unrealistic, and it is unwise and dangerous to lead the public to believe that such expectations can be fulfilled. It is also dangerous to give way to pressures for optimum service for selected groups of the disadvantaged, thereby hindering proper care for the rest of the population. The emphasis must be on the most efficient use of available resources; orderly and balanced increases in these resources; and means to distribute services on an equitable, selective, priority basis.

5. Pressures on behalf of any single aspect of health care will lead to distortions and breakdowns in the system. This is true of pressures on behalf of any given pattern, including the traditional system. It is necessary to foster *balanced development* of health care in keeping with changes created by medical progress, needs of the public, make-up of the medical manpower pool, and other factors. Otherwise, pressures will build up where the votes are greatest and lead to severe ruptures in the practice of medicine.

6. In a free society privileges must be matched by responsibilities. The medical profession enjoys perhaps the greatest privileges of any segment of our society. It must assume comparable responsibilities. Today, a posture interpreted by the people as only protecting these privileges is likely to create an emotional backlash that will undermine the entire stature and acceptance of the profession. Discipline, standards of ethics, concern for the financial well-being of the patient and the nation must be as conspicuously fostered as the interests of physicians themselves.

Guiding Principles of the AMA

Based on these circumstances, the following principles now guide the activities of the AMA and are recommended to all its constituent societies:

1. Organized medicine should concentrate on action to master the forces of change. Only the minimum attention necessary should be devoted to reacting to what others say and do, and thus avoid marching to their tune, abdicating leadership of medicine to outsiders, and dissipating medicine's energies and resources.

2. The AMA and all medicine should emphasize the need for a *balanced* approach to all developments in health care. It is vital to discourage working on any one part of the spectrum without being sure that all related areas are activated at an accommodating pace.

3. The AMA should develop and foster positive action programs addressed to meeting emerging needs as they appear. It should develop and promote recommendations on:

- Allocation of manpower and resources to meet the needs of the majority of the public while gradually adding to ability to fill unmet needs.
- Leadership in advancing all phases of a balanced health care system:
 - Manpower, both medical and supporting
 - Facilities
 - Increased efficiency in utilization of manpower and resources
 - Absorption of new knowledge and techniques to raise standards constantly for all members of the profession
 - Financing of health care on a sound basis from all sources as they can most equitably meet the needs
 - Responsibility in moderating costs in all aspects of health care

4. The AMA and affiliated medical societies should emphasize the self-disciplinary responsibilities of the profession. If discipline of medicine is not to be pre-empted by the federal government, it must be up-to-date and conspicuous by the medical profession itself.

5. The AMA and affiliated medical societies should examine the operational ability of the profession to continue to afford leadership. Attention should be given to the flexibility and efficiency of the profession's organizational structure; membership for all elements of the profession; and attraction of new physicians.

6. The AMA and members of the profession should recognize that the prominence and complexity of health care in the United States now make it a subject of constant

and pervasive interest. Many conditions outside of the medical profession now determine what the posture and communications of the profession must be, rather than the wishes and the timetables of medicine.

Accordingly, the foundations of public relations for the profession must be:

1. *Practical.* Each circumstance must be viewed in terms of what the consequences of any action or position will be. When the consequences of an action or statement will be constructive, it should be considered; when it cannot contribute to AMA's objectives, regardless of its other merits, it should be bypassed.

2. *Positive.* AMA should be the leader of action and thought on medicine; it should not be in the position of primarily reacting to the actions or statements of others.

3. *Anticipatory.* To be the master of change rather than its victim, it is essential to look ahead and sense what challenges may arise. We must provide for instant action and response whenever it is vital. Neither medicine nor communication can meet 20th Century situations with 19th Century systems. Today, communication requires the ability to function immediately; any other course makes the profession extremely vulnerable to the initiatives of those with opposing motives. In line with broad policies, the AMA officers and staff must be able to make judgments and take actions promptly.

4. *On the initiative.* AMA should devote its principal public relations energies to fostering balanced, informed, widespread coverage of medicine and health care, rather than to a multiplicity of matters initiated by others.

5. *Augmented by voices of respected laymen.* Credibility is reduced when the medical profession appears to be isolated in its advocacy of its standards and policies. Information and advocacy from respected leaders in other fields, based on their knowledge and acceptance of the matters involved, will greatly enhance public acceptance. The un-

derstanding and support of such leaders of opinion should be sought actively.

6. *Selective.* AMA's public relations efforts cannot cover everything and do it well. Concentration should be on activating AMA's programs and priorities, with full knowledge that this will mean passing up many things that appear to need attention but are not part of this constructive plan. Members of the profession must be made aware that this selectivity is necessary.

The prominence and the complexity of medicine in the United States today result in many limitations of communication. Medicine is a constant subject of news and comment, much of which cannot be subject to a later response. Often replies cannot be carried by the broadcast medium or publication, or at best will be much less prominent than the original coverage. Quite often a responsible statement cannot be issued until the facts have been obtained, and these may be scattered about the country or involve a local situation or require a great deal of time.

The frequency and complexity of these matters have increasingly diverted the efforts of officers and staff of AMA toward reacting to what others do and say. This decreases the ability to work on constructive, ongoing activities that are vital to our future.

AMA will concentrate on building a positive posture by getting understanding for medicine's functions and its positions on various considerations, and by educating the press, broadcasters, and opinion leaders. This will help forestall much misguided criticism and build a favorable climate that will inoculate against susceptibility to unfair criticism.

Conclusion

The new climate presents new challenges. I believe important steps have been taken toward meeting them. With your help, we can have confidence that medicine will, indeed, be master of the changing climate in years ahead.

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MARCH, 1969

MIKHAIL BULGAKOV, M.D.

Maugham, Cronin, Conan Doyle, Frank
Slaughter—these are the names which usu-
ally come to mind when one thinks of phy-
sician authors—all writing in English and
all of them in our own time or close to it.
Moving away from our time, fewer would
know that Keats studied medicine, for in-
stance, or away from our native language,
that Chekhov was a doctor. Little wonder,
then, that a much-suppressed Russian au-
thor who died at 48 in 1940 is only now
reaching the consciousness of readers in this
country. The man is Mikhail Bulgakov, who
practiced medicine briefly, then turned to

the literary life, with modest success in his
own country.

Although "The Master and Margarita"
has received the widest critical acclaim thus
far given his works published here, physi-
cians might best appreciate the marvelous,
if depressing, insights of his "The Heart of
a Dog." Written in 1925 and never pub-
lished in Russia, this novella has recently
appeared in the U. S. (Harcourt, Brace—
World Publ. Co., 1968) in a very readable
translation by Michael Glenny. Set in Mos-
cow just after the Revolution, the story con-
cerns a physician whose avocation is phy-
siological experimentation. On a snowy win-
ter night he entices a cynical, scalded stray
dog to his home, using a fine scrap of sau-
sage as a lure. After fattening him up, he
transplants the testes and pituitary of a
recently dead human bum into the dog. The
scene in which the donor becomes available
is reminiscent of recent medical news—to
an uncomfortable degree. After a stormy
postoperative course the dog gradually loses
its hair, begins to walk on its hind legs, and
to speak, the speech at first being largely
the curses it has heard over the years in the
streets. As it becomes more human it suc-
ceeds in the great feat of getting admitted
to Soviet citizenship, and even to getting a
job catching cats, an instinct it never lost.

All of this, of course, is only a vehicle for
an elegant lampooning of Soviet bureau-
cracy. As with all good satire, the story is
at times uncomfortable. Depending on one's
own biases, the doctor's troubles with the
new wave of bureaucrats then taking over
Russian politics have all too many parallels
in our own lives. The agitation of students
demanding authority over things which they
are not capable of directing, the dishonesty
that results when a faceless state agency
replaces direct human interaction, the side-
show aspects of medical experimentation,
the almost comic slowness of reaction to a
poorly conceived administrative structure—
all make this brief work seem to have been
written this year, not 44 years ago—down
to the transplantation bit. There are enough
truly amusing scenes to produce laughs out
loud for all but the most depressed, and

enough glimpses of gloom to make the laughs hurt at times. What happens to the professor and his converted dog is best left in Bulgakov's hands—what happens to us in analogous circumstances may not long be left in our own hands. This is a little book worth reading.

* * *

THE FISHING SEASON

By the time this sees print all true trout fishermen will be in such a state that the mere presence of a fish hook in the flesh will not dismay them, and the physician following Dr. Blackmon's technique, as given in his letter in this issue, will need no anesthesia to do his work. Bass fishermen are generally a more relaxed sort, and can fish all

year, hence might need anesthesia, although many of them carry their own supply.

It is surprising what man will endure in the pursuit of pleasure, even pleasure of the non-venereal sort. Sitting half-frozen in duck blinds after travelling a long distance, wet, ill-fed and about to be disappointed, yet perversely happy. Or on opening day of the trout season at the mercy of a late snow-storm in some years, the water always icy, the anglers numerous, the muscles sore and the rocks slippery, yet hope is high. One realizes each year, as the fishing season opens, how strong is our streak of optimism and our hope of renewal, and how willing many of us are to deny reality and go forth smiling. Why else does Charley Brown keep pitching?

Correspondence

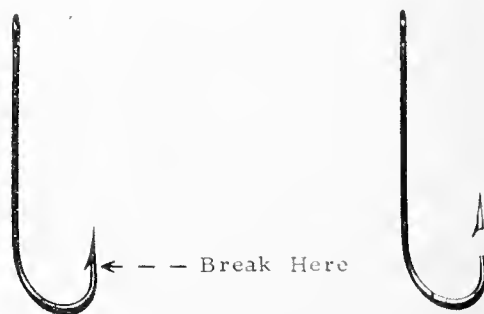
HOW TO REMOVE A FISH HOOK FROM HUMAN FLESH

To the Editor:

This presentation was originally planned as a double blind study, but after 14 years of research it has been impossible to find two blind men who are both fishermen in the same area. With that background, we have to proceed without statistics.

The simple way to remove a fish hook from human flesh is first to disarm the fish hook. This is a very simple procedure in any physician's office if we can locate the weak spot on any fish hook. An average fish hook can be broken quite easily with a pair of needle holders if pressure is applied just back of the beard or barb (see figure). When the barb is removed, of course, the problem is about eliminated. At any other point on the fish hook, the use of needle holders will ruin the instrument before it breaks the steel hook. If the hook is buried in the flesh, push it on through till the barb comes out, if the location permits.

One word of caution is in order here. For those physicians who are practicing in the areas where trout fishing is prevalent, it is imperative to obtain the consent of the fisherman before using this technique. One



The weakest part of a fish hook.

occasionally runs into the rugged individualistic fisherman who ties his own trout flies or lures, and some of these hardy souls will quickly tell you that they had rather lose a pound of flesh than a choice fly. With their consent, then, the same approach can be used for removing trout lures as well as ordinary hooks.

In behalf of all good bass fisherman, it is urged that this information be kept strictly confidential. If the bass of our eastern waters ever find out where the weak spot of the fish hook is, we are out.

BRUCE B. BLACKMON, M.D.
Buies Creek, N. C. 27506

PERITONITIS DUE TO PERFORATION OF THE BLADDER FROM OVERDISTENTION OF THE FOLEY BAG

To the Editor:

In the last few months I have had occasion to explore the abdomen in two aged residents of a nursing home, both of whom had for some months been on Foley catheter drainage of the bladder. Both patients were 90 years of age, each had the classic pre-operative findings of peritonitis, and in each, operation disclosed a widespread fibrinous pelvic peritonitis with pericolicitis and perileitis for which there was no explanation until the perforation of the posterior wall of the bladder was found. In the first instance, discovery was easy because of the projecting catheter tip. In the second case, the perforation was found only because of my recent experience with the first. Both cases were managed by chronic closure of the perforation, continued Foley decompression (with a small bag) of the bladder, and a vigorous regimen of antibiotics.

A review of the background of both elderly patients led me to believe that in each case leakage had occurred around the catheter, that the Foley bag had been overdistended or, in the former case, replaced with a 30 cc hemostatic bag, and that the combination of a contracting bladder and an oversized bag with a projecting catheter tip had led to slow penetration of the posterior bladder wall and ultimate perforation and peritonitis.

A superficial review of the literature reveals little material specific to this issue, but always an implied awareness of the danger. I report these cases because of the rapidly increasing number of old people in nursing homes who are on constant bladder drainage. The not unreasonable, but completely erroneous, belief that distention of the Foley bag will control leakage often leads to the employment of the dangerous expedient of overdistending the bag. I believe the profession should be made aware of the danger and transmit this awareness to the personnel of all nursing homes.

ALDRED T. HAMILTON, M.D.

BLUE CROSS COVERAGE OF RHO-GAM

To the Editor:

The January, 1969 issue of the NORTH CAROLINA MEDICAL JOURNAL on page 29 states that some patients at North Carolina Baptist Hospital and other places are foregoing use of the immune anti-Rh serum, Rho-Gam, because of the cost factor.

I am pleased to tell you that North Carolina Blue Cross and Blue Shield, through its Policy Committee, considered this matter several months ago and a decision was made to allow benefits for this serum and related laboratory tests, when provided on an inpatient basis during the mother's delivery confinement, under the drug and laboratory provisions of Blue Cross certificates. Benefits are also provided for the cost of this service under the Military Medical Program (CHAMPS) which is administered by Blue Cross and Blue Shield in North Carolina and provides maternity benefits in civilian facilities for certain wives of active duty military servicemen.

Since such benefits are applicable to well over 25% of the population of North Carolina, I thought you would be interested in having this information as it relates to the economic aspects of the immune anti-Rh serum.

K. G. BEESTON, Vice President
N. C. Blue Cross and Blue
Shield, Inc.

New Aircraft Proposed for Highway Rescue

Kaman Aircraft Division of Kaman Corporation announced it has begun development and fabrication of a twin-turbine, medium size helicopter for commercial and military applications.

Known as the K-700, it will employ the synchropter rotor system that has characterized a majority of Kaman-built helicopters.

The K-700 will retain proven key dynamic components such as rotor blades, while adding twin engines, dual instrumentation, and all-weather flying capability, and significantly improving in size, payload, range capability, stability and control.

Kaman will offer the K-700 for special civilian operations in which it can outperform other helicopters. These would include highway rescue and medical emergency missions, metropolitan personnel transfer, high altitude construction, and cargo movement.

President's Page

UNSUNG HERO

Since the passage of the Comprehensive Health Planning Law by the 89th Congress (P. L. 89-749), the terms "regional planning" and "area-wide planning" have become commonplace. Many of us are involved to some degree in exploratory efforts along these lines. Initially it is necessary to find out what planning is all about, and to realize that it is essential to include more physicians who are in fact full-time "providers" of medical service on a daily person-to-person basis. In all the present scurrying about, a significant fact has generally been overlooked, namely, that "planning" was not invented by the Federal Government, and that North Carolina has been a pioneer in this field for more than 22 years.

The North Carolina Medical Care Commission was created by the General Assembly of 1945 (General Statutes Chapter 131, Articles 13 and 13A) to "set up a state agency to specialize in the planning, financing, and construction of medical facilities throughout North Carolina and in the standardization of hospitals particularly, and to study ways and means of staffing the State's expanding medical program." Of the 20 members of this Commission, three are nominated by the State Medical Society,* one by the North Carolina Pharmaceutical Association, one by the North Carolina Nurses' Association, one by the State Hospital Association, and one by the Duke Endowment.

Through the years the Commission has developed a close relationship with the state's community hospitals; it is technically staffed and oriented to advise them about their special requirements. But this is not the only function of the Commission. The second part of its program is licensing hospitals and providing consultation services regarding Medicare participation. The third activity, of which many people are unaware,

is administering loans to students enrolled in accredited programs of training in the health-related professions.

The State's Hill-Burton construction program ranks first in the nation in total number of projects and in the number of general hospital projects approved. Of the 445 total medical projects aided during the period 1947-1967, 62 counties were provided with 68 all-new general hospitals. The Commission aided in the construction of 91 public health centers, 49 nurses' residences and school of nursing projects, 21 diagnostic and treatment centers, 15 rehabilitation facilities, 34 long-term care projects, 7 projects expanding mental hospitals, 7 mental health centers, and 3 facilities for the mentally retarded.

For the calendar year 1968, North Carolina continued to lead the nation in the total number of medical facility projects constructed under the Hill-Burton Act. It ranks 7th in the number of beds constructed and 3rd in the number of public health centers developed with Federal aid. North Carolina is now 13th from the top among the states in the number of hospitals and 15th in the number of beds. Among the nine South Atlantic states, we rank second in number of hospitals and beds. This is indeed progress.

These are just a few facts from the remarkable record of sustained achievement in the improvement of health care facilities and personnel in our state; I believe they are news to most of the public including many physicians. This is proof that we have NOT been standing still in these endeavors during the past 20 years, despite frequent statements and inferences to the contrary.

The Executive Secretary of the North Carolina Medical Care Commission, who has directed all these activities since 1947, is our unsung hero, Mr. William F. Henderson. A modest, unobtrusive gentleman of high character and great ability, Mr. Henderson has never sought recognition for his outstanding accomplishments, but he most surely deserves it in full measure. We salute you,

*The present Medical Society representatives are J. Street Brewer, Roseboro; Powell G. Fox, Raleigh; and Hugh F. McManus, Jr., Raleigh. Other physicians, appointed by the Governor, are Drs. William D. James, Hamlet; Harold B. Kernodle, Burlington; Wm. R. Stanford, Durham; and Paul Whitaker, Kinston.

Bill Henderson, and may you have many more healthy and productive years with us!

* * *

References: "The Expansion of Medical Facilities and Services in North Carolina, Two Decades of Progress," The N. C. Medical Care Commission, 437 N. Harrington St., Raleigh; "Educational Loans for Medical and Related Studies", *ibid*; and "Summary of Activities for the Calendar Year 1968", *ibid*. You are urged to obtain copies of these and more fully inform yourself.

DAVID G. WELTON, M.D.

Excerpta Medica Foundation Installs Computer System

The Excerpta Medica Foundation, the largest and most comprehensive international information network in the biomedical field, announces that it has recently installed at its headquarters in Amsterdam an NCR 315 RMC computer system with large auxiliary storage devices and an NCR 321 Communications Controller, for on-line use of the data banks. The greater part of the stored data is available in this system within 100 milli-seconds.

In announcing its computer system as already fully operational, Mr. Peter Warren, a Director of the Foundation who heads the New York office, emphasized that, "The primary aim of the automated system is to obtain permanent storage of the world's biomedical information for immediately available future reference.

As an important by-product of the computer operation, the Foundation can now achieve very fast and efficient production of all the Excerpta Medica monthly abstracting publications, as well as introducing a new series of publications by means of the RCA Video Comp. (DIGEST) electronic composing device."

The Foundation is now in the process of establishing regional centers throughout the United States and in all countries of the world so that its total information input can be processed by computer locally and made available to all U. S. medical scientists, medical institutions, and information centers.

British Study Finds Talwin and Morphine Equally Sedating

Talwin (pentazocine), the potent new non-narcotic analgesic, showed approximately the same sedative properties in gynecologic patients as morphine, as well as a "significantly lower incidence" of postoperative nausea and vomiting, according to results of a study in the British Journal of Anesthesiology (40:341, 1968).

Talwin is manufactured in the United States by Winthrop Laboratories. It is available in the United Kingdom under the name of Fortral.

Committees & Organizations

RELATIVE VALUE STUDY COMMITTEE

RELATIVE VALUE STUDY

This committee was originally established for the creation of a North Carolina value study. This was attempted, and the study was published. Its details were arrived at by the specialist committee method, which some of us felt was essentially arbitrary and individualistic in concept, rather than representative of the whole profession; hence, the adoption of the California study, which had been arrived at by the questionnaire-computer method. There have been several revisions of that study, and it is the present plan of North Carolina Medical Society to continue its use.

This committee was reactivated because of complaints by obstetricians who felt that the schedule was inappropriate in some areas—as, for instance, in its failure to contemplate prenatal care; by the orthopedists, because, for instance, the California schedule showed no differentiation between the unitage for an adult and a pediatric femoral fracture; by the laboratory people relative to M12; by the cardiologists, because of variables in charges for ECG interpretations.

I petitioned the council to continue our use of the California schedule, feeling that its overall assessment had to be more accurate than the one arrived at by the specialist committee method, and that local alterations in our copy would be subject to the same objections that would apply to a local study as a whole. Hence, I feel personally that there is no need for the continuing existence of this ad hoc committee.

However, it may well be that we have an educational function. There are many physicians who still believe this study to be a fee schedule, which it is in no way. It simply established, by units of various size, relativity of charges, and the unit value is left to the individual physicians. In instances where the relativity seems inappropriate to the individual physician, he is at complete liberty to alter in his private practice the

unitage, or its value, since no real coercion exists in the whole concept.

There are, and will continue to be, shortcomings, as new procedures are developed. There are shortcomings based on California oversight or lack of clarification, as with the prenatal obstetrics charge and the femoral fracture charge. These problems, in time, will be resolved in California more accurately than we can resolve them here. Colorado has developed its own schedule, and even a cursory study reveals glaring nomenclature number defects, and inconsistency of relativity—based possibly on local differences, but much more likely, it seems to me, on the innate inaccuracy of the specialist committee method.

There are other relativity studies, such as the modification of PSI, the Blue Shield Study. This was originally devised by averaging good existing fee schedules, and had the basic defect of being based on maximum indemnity schedules. In other words, all the indemnity fee schedules had a maximum fee for *any* kind of surgery; and this, on the face of it, completely ignored appropriate relativity when it came to the relationship of the very costly surgical procedures to the most frequently performed procedures, such as appendectomy and hysterectomy. This has been corrected to a degree, and may well be the study on which the Blue Shield schedules will be based.

I am not sure that the profession has ever adequately understood the use of the relative value study. In simple pragmatic terms, it is used in my office as a mechanism by which my office staff arrives at fees. They know I use, at present, a five dollar unit unless otherwise advised. Under some circumstance, I may elect to use a modified unit value; or I may wish to add or subtract a given amount for special "ease or difficulty" reasons, in which I *elect* to do so. This capacity for election is an essential feature of the study. I say *at present* a five dollar unit, since with the changing dollar value and rising costs, there will be a time when it is more.

There are other areas in which the schedule is to be used, and it is here that profes-

sional alarm develops. It is obvious that Blue Cross, the commercial medical insurance companies, Medicare, Medicaid, the welfare agencies, etc., must have some guidelines by which to arrive at appropriately relative schedules, and it is to be hoped that they would use the California study, which is the one most widely employed. This alarms those members of the profession who overlook the fact that discrepancies between the resulting schedule and their own practice have to do with differences in *unit value* rather than in the units themselves.

ALFRED T. HAMILTON, M.D., Chairman

Bulletin Board

COMING MEETINGS

Greensboro Academy of Medicine Annual Symposium—Jefferson Standard Country Club, Greensboro, March 27.

North Carolina Chapter, American College of Surgeons—Greensboro, April 11-12.

Bowman Gray School of Medicine of Wake Forest University, Postgraduate Course in Obstetrics and Gynecology—Winston-Salem, April 14-16.

Medical Society of the State of North Carolina, 115th Annual Session—Pinehurst, May 18-21.

Roanoke Arthritis Seminar—Hotel Roanoke, Roanoke, Virginia, May 8-10.

NEWS NOTES FROM THE

DUKE UNIVERSITY MEDICAL CENTER

A \$2,843,000 grant from the National Institutes of Health has been awarded to Duke University Medical Center to finance in part construction of a research facility known as Medical Sciences 1-B.

The new structure, to be located on Science Drive near the recently dedicated Nanaline H. Duke Building, will house the Department of Anatomy and clinical research laboratories of the departments of medicine, pediatrics, psychiatry, and surgery.

The building is expected to cost approximately \$5.5 million with the total project cost set at about \$6.4 million. Medical Center funds will be added to the NIH grant to finance construction.

Designed with five floors, the facility is expected to be under construction by the summer of 1970 and completed in 1972-73. Medical Science 1-B will be the second building in the planned new medical campus at Duke.

* * *

A group of Duke University students who staved off the recent flu bug and another group who weren't so lucky participated in a study of the epidemic being conducted by the Department of Community Health Sciences at Duke Medical Center.

(Continued on page 115)

PROGRAM

Preliminary

PROGRAM

One Hundred Fifteenth Annual Session

The Medical Society of the State of North Carolina

Headquarters: THE CAROLINA

Pinehurst, North Carolina

Saturday, May 17, 1969

9:00 a.m.

EXECUTIVE COUNCIL Meeting

(Business of this Session may be continued Sunday morning at 10:00 o'clock)

(Crystal Room—The Carolina)

10:00 a.m.

REGISTRATION DESK opens—(Front Lobby)

Society Members, Delegates, Officials, Auxiliary, Technical and Scientific Exhibitors and Guests will register in this Area.) Registration closes at 5:00 p.m.

2:00 p.m.

SECTION ON RADIOLOGY

(North Room—The Carolina)

Sunday, May 18, 1969

10:00 a.m.

General Registration opens—(Front Lobby)

(Society Members, Delegates, Officials, Auxiliary, Technical and Scientific Exhibitors and Guests will register in this area.)

(Registration closes at 5:00 p.m.)

2:00 p.m.

First Meeting of the Annual Meeting

THE HOUSE OF DELEGATES of the Medical Society

Donald B. Koonce, M.D., Speaker, presiding

Invocation:

Welcome:

MEMORIAL SERVICES: W. Otis Duck, M.D., Mars Hill, Chairman, Committee on Necrology, presiding

BUSINESS:

(Agenda will be available)

(Cardinal Ballroom—The Carolina)

3:00 p.m.

Duke Alumni Association Council—Semi-annual meeting

(Dutch Room—The Carolina)

5:00 p.m.

Registration Desk closes.

6:00 p.m.

House of Delegates recesses to Monday, May 19, 1969
(If Business of First Meeting is not concluded)

Duke Alumni Association Council—Cocktails & Dinner
(Crystal Room—The Carolina)

Monday, May 19, 1969

8:30 a.m.

General Registration opens—(Front Lobby)

(Society Members, Delegates, Officials, Auxiliary, Guests, Technical and Scientific Exhibitors will register in this area.)

8:30 a.m.

Scientific and Technical Exhibits open

(Exhibition Hall)

9:00 a.m.

NORTH CAROLINA BOARD OF MEDICAL EXAMINERS

(Meet for Business and Hearings)

(Camellia Room—The Carolina)

9:00 a.m. to 12:00 Noon

POSTGRADUATE AUDIO-VISUAL PROGRAM

John C. Grier, Jr., M.D., Chairman, Pinehurst

Morning Session—(Azalea Room—The Carolina)

Moderator: Thornton R. Cleek, M.D., Asheboro

9:00 a.m.

DISASTER PLAN

Shows professional personnel of a hospital joining with other groups, including Civil Defense, Red Cross, Veterans' organizations, Boy Scouts, police, and fire and post office departments to provide emergency care for disaster victims.

9:25 a.m.

EMERGENCY REMOVAL OF PATIENTS

A fire in the hospital requires instant counter-measures to protect life and property. The effectiveness of such action depends largely on trained personnel. How to handle incapacitated patients quickly and with minimum stress.

9:50 a.m.

A CASE FOR UNDERSTANDING

The three-sided relationship between the young physician, his hospital, and his patients. The obligations implied in staff membership, need for regulations, relationship to hospital personnel, importance of paper work, and other useful object lessons.

10:20 a.m.

H—THE STORY OF A TEEN-AGE DRUG ADDICT

How the drug traffic operates. How addicts are made.

How this grim social evil may be curbed. Different

solutions to the complex drug problem. The problem must be solved.

10:45 a.m.

FIRE AND EXPLOSION HAZARDS FROM FLAMMABLE ANESTHETICS

Purpose is to point out potential sources of ignition and emphasize the need for constant vigilance to eliminate hazards. Fire hazards of the operating room. Hazard from static or frictional electricity.

11:20 a.m.

THE DISCOVERY OF INSULIN

The inspiring story of Drs. Frederick Banting and Charles Best, who discovered insulin in 1921. Questions about one of man's most baffling diseases were answered.

Monday, May 19, 1969

SECTION ON INTERNAL MEDICINE

(Monday, May 19, 1969—9:00 a.m.-11:00 a.m.)

(Chapel Hall, Village Chapel—Pinehurst)

Richard M. Portwood, M.D., Chairman, Durham

9:00 a.m.

Introductory Remarks and appointment of Nominating Committee to recommend Chairman and Secretary for 1970 meeting. Richard M. Portwood, M.D.

9:10 a.m.

Recent Advances in the Pathogenesis and Treatment of Gout.

William N. Kelley, M.D., Assistant Professor of Medicine, Duke University Medical Center, Durham

9:40 a.m.

CONCEPTS OF PATHOGENESIS AND MANAGEMENT OF RHEUMATOID ARTHRITIS

Jesse E. Roberts, Jr., M.D., Associate in Medicine, Division of Rheumatology, Duke University Medical Center, Durham

10:10 a.m.

SURGICAL APPROACHES TO ARTHRITIS

Donald E. McCollum, M.D., Associate Professor, Division of Orthopaedic Surgery, Duke University Medical Center, Durham

10:40 a.m.

General Discussion

SECTION ON SURGERY

Monday, May 19, 1969—9:00 a.m.-11:00 a.m.

(Cardinal Ballroom—The Carolina)

Edward H. Camp, M.D., Chairman, Canton

FILMS

OFFICE MANAGEMENT OF ANORECTAL LESIONS

Discussion: Henry H. Nicholson, Jr., M.D., Charlotte

CATHETER TECHNIQUE FOR ARTERIAL EMBOLIZATION

Discussion: Sam H. Walker, M.D., Asheville

SPLENECTOMY, INDICATIONS AND TECHNIQUE

Discussion: William R. Bosien, M.D., Tryon

SECTION ON PEDIATRICS AND SECTION ON OBSTETRICS & GYNECOLOGY

Monday, May 19, 1969—9:00 a.m.-11:00 a.m.

(Sanctuary—Village Chapel, Pinehurst)

Theodore D. Scurletis, M.D., Chairman, Section on Pediatrics, Raleigh

Annie Louise Wilkerson, M.D., Chairman, Section on Obstetrics & Gynecology, Raleigh

THEME: NEWER CONCEPTS OF GENETICS AND THEIR EFFECTS ON THE PRACTICE OF OBSTETRICS AND PEDIATRICS

THE GENETICS OF THE INBORN ERRORS OF METABOLISM

Henry Neil Kirkman, Jr., M.D., UNC School of Medicine, Department of Pediatrics, Chapel Hill

INBORN ERRORS OF METABOLISM

James Sidbury, M.D., Duke University School of Medicine, Durham

PRACTICAL CYTO-GENETICS

Arthur C. Christakos, M.D., Duke University School of Medicine, Durham

BUSINESS SESSION

Section on Pediatrics

Section on Obstetrics & Gynecology

SECTION ON NEUROLOGY & PSYCHIATRY

Monday, May 19, 1969—9:00 a.m.-11:00 a.m.

(Pine Room—The Carolina)

Robert L. Rollins, Jr., M.D., Chairman, Raleigh

FUTURE PATTERNS OF MENTAL HEALTH CARE IN NORTH CAROLINA

Moderator: Robert L. Rollins, Jr., M.D.

Panel:

Ewald W. Busse, M.D., Professor and Chairman, Department of Psychiatry, Duke University, Durham

Paul G. Donner, M.D., President, N. C. District Branch, The American Psychiatric Association, Charlotte

John A. Ewing, M.D., Professor and Chairman, Department of Psychiatry, UNC School of Medicine, Chapel Hill

John R. Kernodle, M.D., Member, North Carolina Board of Mental Health, Burlington

Eugene A. Hargrove, M.D., Commissioner of Mental Health State of North Carolina, Raleigh

Richard C. Proctor, M.D., Professor and Chairman, Department of Psychiatry, Bowman Gray School of Medicine, Winston-Salem

FIRST GENERAL SESSION**Monday, May 19, 1969**

(Cardinal Ballroom)

11:00 a.m.CONVENE SESSION: David G. Welton, M.D., President
John Glasson, M.D., 1st Vice-President, presiding

Invocation:

11:15 a.m. to 12:40 p.m.**THE MEDICAL EXAMINER SYSTEM AT LAST**
(PANEL)Moderator: Richard Page Hudson, Jr., M.D., Chief
Medical Examiner, Chapel Hill

Panel:

TOXICOLOGY, ITS USE AND ABUSEArthur J. McBay, Ph.D., Chief Toxicologist, Dept. of
Public Safety, Boston Mass.**THE PRACTICING PHYSICIAN AS A COUNTY MEDICAL EXAMINER**

T. H. S. Ely, M.D., Jonesville, Virginia

12:40 p.m.

Annual Address of the President

David G. Welton, M.D., Charlotte

Announcements

ADJOURNMENT

Monday, May 19, 1969**LUNCHEONS****1:00 p.m.**

University of North Carolina Medical Alumni Association

Mr. Charles Powell, Director, Development & Alumni
Affairs Chapel Hill

(East End—Main Dining Room—The Carolina)

1:00 p.m.

North Carolina Society of Internal Medicine

Richard M. Portwood, M.D.

E. Thomas Marshburn, M.D., Secretary

(Crystal Room—The Carolina)

SECTION ON PATHOLOGY**Monday, May 19, 1969—1:30 p.m.-4:30 p.m.**

(Pine Room—The Carolina)

Arthur E. Davis, Jr., M.D., Chairman, Raleigh

**THE EVALUATION OF PULMONARY FUNCTION
IN HEALTH AND DISEASE****1:30 p.m.****NORMAL AND PATHOLOGICAL ANATOMY**

Phillip C. Pratt, M.D., VA Hospital, Durham

2:30 p.m.**PHYSIOLOGY AND SPIROMETRY**

Johannes A. Kylstra, M.D., Duke Hospital, Durham

3:30 p.m.**BLOOD GAS DETERMINATION**Barry Daley, Instrumentation Lab. Inc., Lexington,
Mass.**4:30 p.m.****ROUND TABLE DISCUSSION****SECTION ON STUDENT AMA CHAPTERS****Monday, May 19, 1969—1:30 p.m.**

(North Room—The Carolina)

Mr. Jay D. Cook, Chairman, Durham

PANEL

Topic: **RISING COSTS OF MEDICAL CARE**

Moderator: Frank W. Jones, M.D., Newton

1:30 p.m.

Panel:

HOW MUCH ARE THE COSTS RISING?Henry Middleton, University of North Carolina School
of Medicine, Chapel Hill**WHY ARE THE COSTS RISING?**Donald DeWar, Bowman Gray School of Medicine,
Winston-Salem**SOME SOLUTIONS TO THE RISING COSTS**Peter Scardino, Duke University School of Medicine,
Durham**2:30 p.m.**

Break

2:45 p.m.Discussion Groups Meet—(assigned on the day of the
meeting)**3:30 p.m.**

Break—(Discussion Group Chairmen meet)

4:00 p.m.**SCIENTIFIC PAPER PRESENTATIONS:** One paper
from each of the three schools will be presented with
a short period for questions and discussion. One of
the papers will be selected by three judges to re-
ceive an award and scroll. The presentation of this
award will be made at the evening Banquet.**5:00 p.m.**

Meeting of the Discussion Group Chairmen

Monday, May 19, 1969—2:00 p.m.**POSTGRADUATE AUDIO-VISUAL
PROGRAM**

John C. Grier, Jr., M.D., Chairman, Pinehurst

Afternoon Session: (Azalea Room—The Carolina)

Moderator: William W. Shingleton, M.D., Durham

2:00 p.m.

SHOCK: RECOGNITION AND MANAGEMENT

Physiology of shock. Recognition and management of the shock patient. Initial countermeasures, fluid replacement, venous catheterization. physiological, monitoring, and drug therapy.

2:30 p.m.

APOLLO APPLICATIONS

Apollo Applications Program with potential benefits from Apollo hardware.

3:00 p.m.

TOTAL THYROIDECTOMY AND NECK DISSECTION FOR THYROID CANCER

Produced at School of Medicine, University of North Carolina, under supervision of Colin Thomas, M.D., American College of Surgery Award film.

3:30 p.m.

THE EMERGENCY TREATMENT OF HEAD INJURIES

Practical methods of treatment of accident victims at the scene of the accident. Types of head-injured patients. Diagnostic and surgical procedures. Appropriate treatment.

4:05 p.m.

NARCOTICS: PIT OF DESPAIR

Shows how inexperienced young people are led to seek refuge in tobacco, alcohol, barbiturates. Malignant companions, masquerading as true friends, introduce marijuana and opiates.

4:35 p.m.

SECRET OF THE WHITE CELL

How white cells (leucocytes) kill germs in the body. Electron-microscope study of white cells.

REFERENCE COMMITTEES**Monday, May 19, 1969—2:00 p.m.**

Reference Committee No. I—

Reference Committee No. II—

5:00 p.m.

Registration booth closes.

5:00 p.m.

Exhibits close—(Scientific and Technical)

(Exhibits under supervision of official watchman)

5:00 p.m.

HOUSE OF DELEGATES adjourns Annual Meeting
(If did not Adjourn on Sunday, May 18, 1969)

5:00 p.m. to 7:00 p.m.

SOCIAL HOUR & RECEPTION—(Dutch)—

University of Virginia School of Medicine
Medical Alumni, former interns, residents are invited
(Country Club of North Carolina)

Hosts:

5:30 p.m.

SOCIAL HOUR—Scientific and Technical Exhibitors

By: Medical Society

(Pinehurst Country Club)

(Admission by Ticket and Badge)

6:00 p.m.

SOCIAL HOUR—Duke Medical Alumni Association

(Azalea Room, The Carolina)

(Jay M. Arena, M.D., Secretary, in charge)

6:30 p.m.

SOCIAL HOUR AND DINNER—Medical College of Virginia Alumni

(Crystal Room—The Carolina)

7:00 p.m.

DINNER—Duke Medical Alumni, Association

(West End—Main Dining Room, The Carolina)

7:00 p.m.

BANQUET—MEDPAC

(Main Dining Room—The Carolina)

(Kenneth E. Cosgrove, M.D., presiding)

STUDENT AMA CHAPTERS DINNER**Monday, May 19, 1969—7:00 p.m.****DINNER MEETING**

Invocation:

Introduction of Guests: Jay D. Cook, Chairman

SPEAKER: Amos N. Johnson, M.D., Garland

Award for Outstanding Student Paper

Tuesday, May 20, 1969

8:30 a.m.

Registration opens—(Front Lobby)

8:30 a.m.

EXHIBITS OPEN—Technical Exhibits

(Exhibition Hall—The Carolina)

Scientific Exhibits

(South Room—The Carolina)

POSTGRADUATE AUDIO-VISUAL PROGRAM

John C. Grier, Jr., M.D., Chairman, Pinehurst

Morning Session: (Azalea Room—The Carolina)

Moderator: James G. Jones, M.D., Jacksonville

9:00 a.m.

MANNED SPACE FLIGHT REPORT

Highlights of Apollo 6. Problems encountered and solutions presented. Preparations for the first manned Apollo, Saturn IV, and Saturn V.

9:20 a.m.

THE GOLDEN DECADE

The swift and remarkable changes in medical victories of man in his war against disease.

9:55 a.m.

ALCOHOL AND DRUGS

Effect of alcohol and drugs on the driver. The social drinker. Teen-agers and drinking. The hazard of drugs, including the doctors' prescriptions as well as narcotics.

10:30 a.m.

MODERN MANAGEMENT OF PREGNANCY IN THE Rh-NEGATIVE SENSITIZED WOMAN

New diagnostic technique. Amniocentesis. Spectrophotometric analysis of the amniotic fluid. Optimum time for delivery.

10:55 a.m.

INTRAUTERINE FETAL TRANSFUSION

In utero treatment of the infant severely afflicted with hemolytic disease has reduced the mortality of fetuses. Refinement of transfusion procedures. Several technical difficulties.

11:10 a.m.

CARDIAC ARRHYTHMIAS

Several experimental arrhythmias. Abnormality of cardiac conduction association with arrhythmias is shown.

11:35 a.m.

LIVING CELLS IN CULTURE-HELA CELL STRAIN

Steps in culturing and photographing cells. Watch the culture grow and see normal and abnormal mitosis, movements of mitochondria, lipo-protein granules.

SECTION ON GENERAL PRACTICE OF MEDICINE

Tuesday, May 20, 1969—9:00-11:00 a.m.

(Cardinal Ballroom—The Carolina)

Jack W. Wilkerson, M.D., Chairman, Greenville

TREATMENT OF CHRONIC AND RECENT INFECTIONS NOT CURED BY ANTIBIOTICS

David T. Smith, M.D., Duke Hospital, Durham

INFECTIOUS MONONUCLEOSIS, NEW DATA AND SEQUELAE

Joseph S. Pagano, M.D., Associate Professor Medicine & Bacteriology, UNC School of Medicine, Chapel Hill

RE APPRAISAL AND EVALUATION OF CURRENT ANTIBIOTICS

Samuel Saslaw, M.D., Ph.D., Professor of Medicine and Microbiology, Ohio State University, Department of Medicine, Columbus, Ohio

SECTION ON OPHTHALMOLOGY AND OTOLARYNGOLOGY

Tuesday, May 20, 1969—9:00-11:00 a.m.

(Chapel Hall—Village Chapel)

J. Banks Anderson, Jr., M.D., Chairman, Durham

PATTERNS OF ORBITAL AND OCULAR INJURY IN VIETNAM

Frederick C. Butler, Jr., M.D., Wilmington

"DOCTOR, MY SINUSES ARE KILLING ME!"

Jack Campbell, M.D., Wilmington

OCULAR LOCALIZATION IN LARVAL MIGRANS

Harold N. Jacklin, M.D., Greensboro and L. B. Holt, M.D., Winston-Salem

COMPLICATIONS OF TRACHEOTOMY

Deryl G. Stowe, M.D., Albuquerque, New Mexico

ASTEROID HYALITIS AND DIABETES MELLITUS

John A. Stanley, M.D., Winston-Salem

ACUTHERAPY OF THE INFERIOR TURBINATE

Thad H. Pope, Jr., M.D., Durham

SECTION ON PUBLIC HEALTH AND EDUCATION

Tuesday, May 20, 1969—9:00-11:00 a.m.

(Holly Inn Ballroom—Pinehurst)

Caroline H. Callison, M.D., Chairman, Clinton

EXPERIENCE IN MULTIPHASIC SCREENING IN NORTH CAROLINA

Moderator: Isa C. Grant, M.D., Raleigh

Panel: Sylvester Vala, M.D., Medical Consultant Chronic Disease Section, State Board of Health

H. A. Tyroler, M.D., Department of Epidemiology, University of North Carolina, Chapel Hill

O. David Garvin, M.D., Health Director Orange-Person-Chatham-Lee Counties

Mr. Jim Collins, Public Health Advisor, U. S. Public Health Service

SECTION ON ANESTHESIOLOGY

Tuesday, May 20, 1969—9:00-11:00 a.m.

(Pine Room—The Carolina)

Kenneth D. Hall, M.D., Chairman, Durham

INVESTIGATION OF CHANGES IN BLOOD CASES. EEG AND VIGILANCE BEHAVIOR DURING INCREASED OXYGEN PRESSURE IN OLD AND YOUNG COMMUNITY VOLUNTEERS

Ingeborg B. Talton, M.D., Durham

A REVIEW OF POSSIBLE MECHANISMS OF HALOTHANE TOXICITY

Richard A. Kemp, M.D., Winston-Salem

PARA-ANESTHETIC DRUGS

C. R. Stephen, M.D., Dallas Texas

SECTION ON ORTHOPAEDICS & TRAUMATOLOGY

Tuesday, May 20, 1969—9:00-11:00 a.m.

(Village Chapel Sanctuary—Pinehurst)

Louis B. Dainel, Jr., M.D., Chairman, Pinehurst

THEME: THE ORTHOPAEDIC MANAGEMENT OF ARTHRITIS

9:00 a.m.-9:30 a.m.

SURGERY OF THE HIP AND KNEE

Donald E. McCollum, M.D., Associate Professor, Orthopaedic Surgery, Duke University Medical Center, Durham

9:30 a.m.-9:40 a.m.

Discussion

9:40 a.m.-9:55 a.m.

SURGERY OF THE FOOT

Louis B. Daniel, Jr., M.D., Pinehurst

9:55 a.m.-10:00 a.m.

Discussion

10:00 a.m.-10:20 a.m.

SURGERY OF THE HAND

James R. Urbaniak, M.D., Instructor, Orthopaedic Surgery, Duke University Medical Center, Durham

10:20 a.m.-10:30 a.m.

Discussion

10:30 a.m.-10:50 a.m.

THE DIFFERENTIAL DIAGNOSIS OF JOINT PAIN IN CHILDREN

Cecil H. Neville, Jr., M.D., Pinehurst

10:50 a.m.-11:00 a.m.

Final Discussion and Adjournment

SECTION ON DERMATOLOGY

Tuesday, May 20, 1969—9:00-11:00 a.m.

(North Room—The Carolina)

Joseph M. Hitch, M.D., Chairman, Raleigh

SOUND-FILM PRESENTATIONS OF INTERESTING DERMATOLOGIC CONDITIONS

DERMATOSES OCCURRING MAINLY IN JAPANESE
Takahashi—Japan

KERATODERMIA PALMARIS ET PLANTARIS

Floderus and Bergstroem—Sweden

MAL DE MELEDA

Kogoj—Yugoslavia

ONCHOCERCIASIS

Clarke, Bearcroft and Okoji—Nigeria

MALIGNANT ATROPHYING PAPULOSIS

Degos, Sidi, Bourgeois-Spinasse and Arouete—France

PEUTZ-JEGHER'S SYNDROME

Kitamura and Kawamura—Japan

SUBCORNEAL PUSTULAR DERMATOSIS

Sneddon and Wilkinson—England

INTERMISSION

CUTANEOUS VASCULAR PHENOMENON ASSOCIATED WITH FUNCTIONING CARCINOID TUMOR

Kierland—U. S. A.

COCCIDIOIDOMYCOSIS

Levan, Gregersen and Reed—U. S. A.

DERMATOSIS CENICINETA (ERYTHEMA DYSCROMICUM PERSTANS)

Ramirez—San Salvador—Convit, Kerdel-Vegas and Gordon—Venezuela

FAMILIAL CIRCUMSCRIBED ERYTHROKERATODERMA (ERYTHROKERATODERMIA FAMILIARIS CIRCUMSCRIPTA)

Sidi, Bourgeois-Spinasse and Arouete—France

DISTINCTIVE EXUDATIVE DISCOID AND LICHENOID CHRONIC DERMATOSIS

Sulzberger, Baer and Brunauer—U. S. A.

(These films were prepared by the Institute for Dermatologic Communication and Education.)

BUSINESS MEETING

SECOND GENERAL SESSION

Tuesday, May 20, 1969

(Cardinal Ballroom)

11:00 a.m.

CONVENE SESSION—John Glasson, M.D., 1st Vice President, Durham

11:15 a.m.

Address:

Dwight L. Wilbur, M.D., President
American Medical Association

11:45 a.m.

Address: **NATIONAL PROGRAM FOR DERMATOLOGY**

J. Lamar Callaway, M.D.
Duke Medical Center
Durham

12:15 p.m.

Address: THE TRAINING OF ALLIED HEALTH PROFESSIONAL PERSONNEL
 Darrel J. Mase, Ph.D., Dean
 College of Health Related Professions
 J. Hillis Miller Health Center
 University of Florida
 Gainesville, Florida

12:45 p.m.

ANNOUNCEMENTS
 ADJOURNMENT

Tuesday, May 20, 1969

LUNCHEONS

12:30 p.m.

Bowman Gray Medical Alumni of Wake Forest College
 Mr. Howard Hall, Director, Development & Alumni Affairs
 (Crystal Room—The Carolina)

1:00 p.m.

North Carolina Commission for the Blind
 Medical Advisory Board
 Mrs. Esther Carlyle, in charge
 (Holly Inn—Pinehurst)

Tuesday, May 20, 1969

POSTGRADUATE AUDIO-VISUAL PROGRAM

John C. Grier, Jr., M.D., Chairman, Pinehurst
 Afternoon Session—(Azalea Room, The Carolina)
 Moderator: Paul McBee Abernethy, M.D., Burlington

2:00 p.m.

INTENSIVE RESPIRATORY CARE

Techniques for diagnosing and treating acute respiratory failure. Emphasis on the roles of doctor, nurse, and laboratory technician.

2:35 p.m.

PRACTICAL ASPECTS OF PERITONEAL DIALYSIS
 The structure and function of the peritoneum, an effective filtering medium. Catheterization, lavage, dialysis, and drainage. Dialysis may be brief or prolonged. May be used by virtually any hospital.

3:05 p.m.

A STORM—A STRIFE

The important relationship between medicine and religion.

3:40 p.m.

APOLLO LUNAR MISSION PROFILE

Preflight preparations, launch, earth parking orbit, lunar trajectory, repositioning of the Apollo modules, midcourse corrections entering lunar orbit, crew transfer, descent, lunar exploration, ascent earth trajectory, reentry and parachute deployment.

4:15 p.m.

SILVER NITRATE WET TREATMENT OF BURNS
 Treatment of burns with continuously wet dressings with bacteriostatic control with 0.5% silver nitrate.

SECOND MEETING OF THE HOUSE OF DELEGATES

Tuesday, May 20, 1969—2:30 p.m.

(Cardinal Ballroom—The Carolina)

(Agenda will be available)

5:00 p.m.

Registration closes.

5:00 p.m.

Exhibits close.

PRESIDENT'S RECEPTION

Tuesday, May 20, 1969—5:30 p.m.

(Azalea Room—The Carolina)

(By invitation)

PRESIDENT'S DINNER

Tuesday, May 20, 1969—7:00 p.m.

(Main Dining Room—The Carolina)

BANQUET

TOASTMASTER: John R. Kernodle, M.D., Burlington

Invocation: Rev. Bartine Sherman, Rector St. Martin's Episcopal Church, Charlotte

Presentation of Guests:

Presentation of President's Jewel: Frank W. Jones, M.D., Newton

Installation of President-Elect Edgar T. Beddingfield, Jr., M.D.

Administration of Authorized Oath of Office

An Address in Acceptance: Edgar T. Beddingfield, Jr., M.D., Wilson

Announcements:

Adjourn Banquet Session

ENTERTAINMENT

(Cardinal Ballroom—The Carolina)

8:30 p.m.

THE ORIOLE FOUR
 Glen Burnie, Maryland

9:00 p.m.**GRANDE MARCHE**

(President and official party)

9:30 p.m.-2:00 a.m.**PRESIDENT'S BALL**

Music by: George Doerner and his Orchestra

Wednesday, May 21, 1969**7:45 a.m.****EDITORIAL BOARD—Breakfast****NORTH CAROLINA MEDICAL JOURNAL**

(Main Dining Room—East End)

7:45 a.m.**AUXILIARY Breakfast meeting**

(1969-70 Officers and Board of Directors)

(Crystal Room—The Carolina)

9:00 a.m.

Registration Desk opens—(Front Lobby)

9:00 a.m.

Scientific and Technical Exhibits open

(South Room and Exhibition Hall—The Carolina)

THIRD GENERAL SESSION**Wednesday, May 21, 1969**

(Cardinal Ballroom—The Carolina)

9:00 a.m.**CONVENE SESSION:** Mark McD. Lindsey, M.D., 2nd
Vice President, presiding**9:00 a.m.****CONJOINT SESSION**North Carolina State Board of Health and Medical
Society of the State of North CarolinaJames S. Raper, M.D., President, Asheville, and Jacob
Koomen, M.D., State Health Director, reporting.**9:30 a.m.****PRESENTATION OF AWARDS:****Moore County, Wake County and Gaston County Awards**
(Lester A. Crowell, Jr., M.D., Chairman, Committee
on Awards)**AMA-ERF Checks to:** Duke University Medical School
UNC School of Medicine

Bowman Gray School of Medicine

(William L. Fleming, M.D., Chairman, Chapel Hill)

9:45 a.m.**BREAK****10:00 a.m.****TRANSPORTATION AND TREATMENT OF ACCI-
DENT VICTIMS**Moderator: James F. Newsome, M.D., Chapel Hill
Panel:**11:30 a.m.**

Address: Edgar T. Beddingfield, Jr., M.D., Wilson

12:00 NoonInstallation of Officers elected in 1969 House of Dele-
gates—David G. Welton, M.D., presiding**12:00 Noon**

Exhibits close.

Registration Desk Closes.

12:30 p.m.**PRESENTATION OF PRIZES:** Chalmers R. Carr,
M.D., Chairman Committee on Scientific Exhibits,
presiding.**ADJOURN SINE DIE**

Monthly Perinatal Mortality Report

TOTAL DELIVERIES AND PERINATAL DEATHS BY COLOR FOR COUNTIES AND SELECTED CITIES
OF RESIDENCE, WITH RATES PER 1,000 DELIVERIES¹: NORTH CAROLINA,
DECEMBER 1968 AND MOST RECENT 12-MONTH TOTALS

County	WHITE					NONWHITE					County	WHITE					NONWHITE				
	Perinatal Deaths		Total Deliveries Jan. 1968-Dec. 1968	Perinatal Rate Per 1,000 Deliveries	Perinatal Deaths Jan. 1968-Dec. 1968	Total Deliveries Jan. 1968-Dec. 1968	Perinatal Rate Per 1,000 Deliveries	Perinatal Deaths		Total Deliveries Jan. 1968-Dec. 1968		Perinatal Rate Per 1,000 Deliveries	Perinatal Deaths		Total Deliveries Jan. 1968-Dec. 1968	Perinatal Rate Per 1,000 Deliveries					
	December 1968	January 1968 - December 1968						December 1968	January 1968 - December 1968				December 1968	January 1968 - December 1968							
NORTH CAROLINA	137	1914	65838	29.1	102	1415	28334	49.9													
ALAMANCE	1	43	1194	36.0		18	443	40.6	PENDER		4	135	-		1	5	152	26.4			
ALEXANDER	1	11	283	38.9		4	35	-	PERQUIMANS		1	66	-		1	2	56	-			
ALLEGHANY		3	118	-			4	-	PERSON		9	232	38.8		1	12	189	63.4			
ANSON	1	6	151	39.7	2	18	290	62.1	PITT	3	17	738	23.0	1	29	614	47.1				
ASHE	3	16	312	51.3		1	2	-	POLK		6	134	44.8	1	3	29	-				
AVERY		5	228	21.9			2	-	RANDOLPH		32	1184	27.9	1	4	134	-				
BEAUFORT		13	384	33.9	1	12	240	50.0	RICHMOND	5	20	482	41.5	2	17	280	60.7				
BERTIE		1	122	-		13	260	50.0	ROBESON		1	16	602	20.6	2	61	1499	40.7			
BLADEN		7	256	27.3		10	232	43.1	ROCKINGHAM	1	27	959	28.2		22	394	55.8				
BRUNSWICK		7	278	25.2		10	156	64.1	ROWAN		28	1153	54.2	1	15	340	44.7				
BUNCOMBE	6	76	2156	35.3	2	12	288	41.7	RUTHERFORD	2	29	716	40.5		9	147	61.7				
BURKE	3	23	1004	22.9	1	5	80	-	SAMPSON	1	16	425	37.6	2	18	370	48.0				
CABARRUS	4	33	1070	30.8	1	16	308	51.9	SCOTLAND	1	9	311	28.9	2	11	248	44.4				
CALDWELL	3	40	1093	36.6	1	2	102	-	STANLY	2	26	612	42.5	1	9	126	71.4				
CAMDEN			49	-		3	37	-	STOKES	1	13	354	36.7		3	56	-				
CARTERET		9	472	19.1		4	88	-	SURRY	4	20	902	22.0		4	61	-				
CASWELL	1	7	148	47.3		9	189	47.6	SWAIN	1	2	87	-		1	52	-				
CATAWBA	4	43	1431	30.0		9	217	41.5	TRANSYLVANIA		10	331	30.2		3	22	-				
CHATHAM		7	329	21.3		5	191	26.2	TYRRELL		1	21	-		2	25	-				
CHEROKEE		9	294	30.6			16	-	UNION	1	32	715	44.9	1	16	365	43.9				
CHOWAN		1	92	-	1	6	98	-	VANCE	1	7	266	26.3	1	14	360	38.9				
CLAY		6	80	-			1	-	WAKE	4	69	2908	23.7	3	64	1167	54.8				
CLEVELAND	3	26	926	28.1	2	19	449	42.3	WARREN		1	74	-		8	175	45.7				
COLUMBUS		12	561	21.4		15	345	43.5	WASHINGTON		3	134	-		4	157	-				
CRAVEN	5	31	1181	26.2	2	19	392	48.5	WATAUGA	1	14	336	41.7			6	-				
CUMBERLAND	8	113	3437	32.9	5	66	1283	51.4	WAYNE	2	25	1112	22.5	3	34	592	57.4				
CURRITUCK			53	-		5	37	-	WILKES	1	20	757	26.4		5	63	-				
DARE		3	119	-			5	-	WILSON	1	11	569	19.3	2	25	556	45.0				
DAVISON	3	42	1412	29.7		15	285	52.6	YADKIN	2	13	362	35.9		1	31	-				
DAVIE	1	12	285	42.1		3	57	-	YANCEY		1	210	-		1	3	-				
DUPLIN	1	8	375	21.3	1	15	327	45.9													
DURHAM	4	45	1479	30.4	3	37	894	41.4	CITIES												
EDGECOMBE		15	463	32.4	4	23	554	41.5	ALBEMARLE	1	9	169	53.3		2	53	-				
FORSYTH	2	62	2618	23.7	4	73	1100	66.4	ASHEVILLE	1	25	786	31.8	1	10	243	41.2				
FRANKLIN	1	4	171	-	2	16	259	61.8	BURLINGTON	1	19	521	36.5		6	135	44.4				
GASTON	4	70	2489	28.1	1	22	549	40.1	CHAPEL HILL	1	9	262	34.4	3	5	55	-				
GATES		1	39	-		4	105	-	CHARLOTTE	6	67	3117	21.5	4	89	1836	48.6				
GRAHAM		3	118	-			8	-	CONCORD	2	9	235	38.7	7	128	54.7					
GRANVILLE		10	224	44.6	2	32	351	91.2	DURHAM	1	24	967	24.8	3	33	768	43.1				
GREENE		1	83	-		8	145	55.2	ELIZABETH CITY		5	155	32.8	1	7	104	67.8				
GUILFORD	5	128	3562	35.9	7	93	1606	57.9	FAYETTEVILLE	2	35	1016	34.4	3	34	577	58.9				
HALIFAX	1	8	365	21.9	5	40	668	59.9	GASTONIA	1	28	809	34.6		14	245	57.1				
HARNETT	2	17	577	29.6	1	16	354	45.2	GOLDSBORO	2	9	343	26.2	1	15	281	52.4				
HAYWOOD	1	27	725	37.2	1	3	25	-	GREENSBORO	2	54	1632	33.1	4	52	953	54.6				
HENDERSON	1	26	672	39.7		2	33	-	GREENVILLE	1	7	323	21.7		7	171	47.9				
HERTFORD		7	131	53.4	1	18	271	66.4	HENDERSON		4	115	-		7	144	48.6				
HOKE		5	110	45.5	1	14	224	62.5	HICKORY	1	7	351	19.9		7	102	68.6				
HOYE			36	-		2	62	-	HIGH POINT		29	802	36.0	2	30	461	65.1				
IREDELL	3	28	943	29.7	3	23	322	71.4	JACKSONVILLE	1	17	441	38.5	1	1	66	-				
JACKSON	1	4	231	-		1	39	-	KINSTON	1	3	233	-		16	214	54.7				
JOHNSTON	4	26	733	38.2		14	330	42.4	LENOIR		6	173	34.7		1	51	-				
JONES		2	79	-	1	4	78	-	LEXINGTON		3	258	-		5	80	-				
LEE		9	414	21.7	1	9	147	61.2	LUMBERTON		5	233	21.5	1	13	195	57.7				
LENOIR	1	17	521	32.6	1	26	436	59.6	MONROE		7	159	44.0		7	110	63.0				
LINCOLN		20	524	38.2		3	92	-	NEW BERN		6	174	34.5	2	10	155	74.1				
MCDOWELL	3	13	503	25.8			36	-	RALEIGH	2	35	1456	24.0	2	41	600	65.2				
MACON	2	5	194	25.8			7	-	REIDSVILLE		6	137	45.8		3	92	-				
MAKISON		8	239	33.5			3	-	ROANOKE RAPIDS	1	6	187	32.1		4	57	-				
MARTIN		6	207	28.6	2	14	264	53.0	ROCKY MOUNT E		2	130	16.4		9	153	64.1				
MECKLENBURG	8	96	4697	20.4	4	98	2120	46.2	ROCKY MOUNT II		4	235	24.4	2	7	95	50.7				
MITCHELL		6	205	29.3			1	-	SALISBURY		8	241	33.0	1	8	135	50.7				
MONTGOMERY		5	239	20.9		3	122	-	SANFORD		6	196	30.3		2	69	-				
MOORE	2	11	505	21.9	1	7	242	28.9	SHELBY		5	225	22.2		6	121	48.4				
NASH	2	12	535	22.4	2	23	502	45.8	STATESVILLE	1	7	260	26.9		6	124	64.6				
NEW HANOVER	1	32	1059	30.2	3	12	415	68.9	THOMASVILLE	2	7	206	34.0		7	124	56.5				
NORTHAMPTON		1	95	-	1	22	320	68.8	WILMINGTON	1	15	559	26.8	3	10	367	71.0				
ONSLOW	5	52	2133	24.4	2	12	428	28.0	WILSON	1	5	319	15.7		12	264	55.5				
ORANGE	2	27	776	34.8	3	12	239	50.2	WINSTON SALEM	1	30	1365	22.0	4	69	1035	66.7				
PAMLICO		1	81	-		1	59	-													
PASQUOTANK		5	278	18.0	1	12	196	61.2													

¹Perinatal Death Rate = $\frac{\text{fetal deaths (stillbirths of 20 weeks gestation or more) + neonatal deaths (under 28 days of life)}}{\text{total live births + stillbirths of 20 weeks gestation or more}} \times 1000$

Rates are not calculated for less than 100 deliveries or less than 5 perinatal deaths.

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BLUE SHIELD
for doctor bills

North Carolina Blue Cross and Blue Shield, Inc.

Bulletin Board

(Continued from page 104)

Approximately 1,000 students, including 250 who reported flu symptoms and went to the Duke student health service for treatment and 750 who were taken at random from the remainder of the student body, were sent letters requesting that they complete a questionnaire about the flu.

Dr. John B. Nowlin, associate in community health sciences, and Dr. Mary L. Brehm, research associate in sociology, explained that the survey will aid researchers in determining just how many people had the flu and how it spread, thus giving physicians some clues on prevention and control of possible future flu outbreaks.

Investigators also hope to use information from the questionnaires to postulate possible reasons why some people got the flu and other did not. The effectiveness of the flu vaccine also will be studied from survey results.

* * *

Dr. Ben Younger, an associate in the Department of Obstetrics and Gynecology at Duke Medical Center, has received the Prize Thesis Award of the South Atlantic Association of Obstetrics and Gynecologists for his paper on "The Effect of Human Gonadotrophins on Antibody Production." The award, which is given annually for the best thesis in basic or clinical research in human reproduction, was presented to Dr. Younger at the annual meeting of the association held recently at Hot Springs, Va.

Alterations in the immune responses during pregnancy have been observed for years, but they remain poorly understood. They are of particular interest to the immunologist, Dr. Younger pointed out, "since a better understanding of them might make organ transplantation more feasible."

* * *

The Department of Medicine at Duke University Medical Center has promoted three men to the rank of full professor.

Dr. John B. Pfeiffer, Dr. Roscoe R. Robinson, and Dr. Herbert A. Saltzman, all formerly associate professors, will assume their new positions April 1.

Dr. Pfeiffer, who earned his M.D. degree at Cornell University Medical College, came to Duke in 1949 and has been associate professor of neurology since 1958. He is also a consultant in neurology at Watts Hospital in Durham.

Dr. Robinson, a graduate of the University of Oklahoma School of Medicine, came to Duke as an associate in medicine in 1960 and was named associate professor of medicine in 1965.

Dr. Saltzman, a graduate of Jefferson Medical College of Philadelphia, came to Duke in 1958 and was chief of pulmonary diseases at the Durham Veteran's Hospital until 1963. He is presently director of the Hyperbaric Unit at Duke.

Three Duke University Medical Center administrators have been promoted to positions in the hospital director's office.

C. Edward McCauley, assistant director since 1967, is now associate director. George H. Mack, formerly administrative associate, and S. Douglas Smith, formerly administrative assistant to the dean of the School of Medicine, have become assistant directors.

Announcement of the new appointments was made by Dr. Stuart M. Sessoms, director of the hospital.

NEWS NOTES FROM THE UNIVERSITY OF NORTH CAROLINA SCHOOL OF MEDICINE

The Carolina Population Center of the University of North Carolina has received a \$1.5 million grant from the Ford Foundation. The grant is for continued support of the Center, which was established in 1966.

The Carolina Population Center has applied a multidisciplinary approach to a wide range of population research, training, service, and field consultative activities that currently involve 20 academic departments at the University and 79 faculty members.

Dr. Moye W. Freymann is director of the Center.

* * *

A \$90,000 grant for an oral cancer detection training program and clinic has been awarded to the University of North Carolina School of Dentistry.

Dr. Grover C. Hunter, Jr. is program director for the project, which is funded by the National Cancer Institute of the U. S. Department of Health, Education, and Welfare.

Dr. Hunter, professor and chairman of the Department of Periodontics and Oral Pathology, said the funds will be used for three purposes:

—To upgrade and expand the dental students' training program in cancer detection.

—To establish an oral cancer detection clinic at the School of Dentistry for referral patients from throughout the state.

—To support summer projects for dental students interested in this type of training.

* * *

Dr. H. Stanley Bennett, prominent biologist and anatomist, now director of the University of Chicago Medical School's Laboratory for Cell Biology, has accepted the invitation of the University of North Carolina to become the Sarah Graham Kenan Professor of Biological and Medical Sciences. Dr. Bennett will head a center for research into new contraceptives in mass birth control campaigns, financed by the Rockefeller Foundation at \$2 million.

Dr. Bennett also will be chairman of the Department of Anatomy in the University in Chapel Hill. His appointment will be effective June 1, 1969.

The Kenan Professorships are distinguished teaching and research assignments, with salary supplements above the regular faculty salary scale which enables the University of North Carolina to continue building a strong faculty.

Dr. Ralph E. Boatman has been named director of Continuing Health Education in the UNC School of Public Health, to succeed Dr. John J. Wright who has directed the Service for the past six years.

Dr. Wright steps down from the post to assume a full-time position with the School of Public Health as associate director for field services.

The new director is also professor and chairman of the Department of Health Education.

He is currently serving a four-year term on the U. S. Public Health Service's National Advisory Allied Health Professions Council. A member of the UNC faculty since 1960, Dr. Boatman became department chairman in 1961. He holds both the M.P.H. and Ph.D. degrees from UNC.

* * *

Dr. Robert E. Whalen, associate professor of medicine at the Duke University Medical Center, has assumed office as president of the Southern Section, American Federation for Clinical Research. He succeeds Dr. William B. Blythe, a member of the medical faculty at the University of North Carolina.

Dr. Whalen took over the presidency at the recent meeting held in conjunction with that of the Southern Society for Clinical Investigation. The outgoing president of the society is Dr. Herbert O. Sieker, professor of medicine at Duke. Membership of the two organizations totals about 5,000.

A number of doctors from Duke and UNC are presenting technical research papers before the two organizations.

* * *

Research at the Duke University Medical Center by a team of investigators headed by Dr. Rebecca H. Buckley indicates that moderate or partial deficits in immunity of children are far more common than the characteristically rare, extreme forms.

Dr. Buckley, an assistant professor of pediatrics and an associate in immunology, noted that "little is known about the exact nature of the defect or defects in children with partial impairment of their immunity since advances in the field of immunology have only recently provided a means for identifying such individuals."

A Birth Defects Center established at Duke in July of 1968, supported by the National Foundation-March of Dimes and directed by Dr. Buckley, has been intensively studying children with moderate as well as severe impairments in immunity.

The design of the program at Duke has three parts: to characterize as completely as possible the exact nature of the deficits in such children, to facilitate and make more accurate the diagnosis of these conditions, and to aid in developing appropriate treatment.

Studies performed at the Birth Defects Center on a number of children with moderate defects in immunity have shown very poor correlation between the amounts of gamma globulins in the blood of the children and the actual quantities of antibodies they

made to various infectious agents and other substances.

Some children with moderately low concentration of these blood proteins made antibodies as well as children with normal concentrations. On the other hand, some children with normal or near-normal concentrations of these proteins made antibodies very poorly.

"These results emphasize the need for functional studies of immunity in evaluating the child who is unduly susceptible to infection," Dr. Buckley said. Some children studied at the Duke center have been found to have poorly functioning white blood cells, called lymphocytes, which are even more important than antibodies in resistance to some types of infections. This type of defect can occur even in the presence of normal antibody function.

A second phase of the study at Duke deals with members of the families of such children to study the relative importance of environmental and hereditary factors, and to identify normal people who carry the genetic trait and can pass it on to their children," Dr. Buckley said. "Abnormalities have been detected in asymptomatic, ostensibly normal relatives of some of the children studied at Duke."

A final phase of the investigation centers on efforts to develop more appropriate, effective and lasting treatment for such disorders.

Treatment now is limited to antibiotics given for specific disease and injections of gamma globulin given to provide a short term supply of antibodies. Up until recently there has been no way to treat patients who have abnormally functioning lymphocytes.

Efforts by the Duke team to transplant lymphoid tissues in the form of bone marrow to such a patient from a family member led to marked clinical improvement in the patient and to improvement in the function of her lymphocytes.

* * *

College seniors from Charlotte, Greensboro, and Henderson have been named winners of 1969 Morehead Fellowships in Medicine at the University of North Carolina here. They will enroll in the UNC medical school this fall.

The Fellows are James Willard Stratton of Charlotte, David Alan Grimes of Greensboro, and Dale Alan Newton of Henderson. Each has been a Dean's List student for four years.

Each fellowship is valued at \$10,000, plus tuition and fees, to cover expenses of four years of medical school. Financial need is not considered in the selection of winners.

Morehead Medical Fellows are selected by trustees of the John Motley Morehead Foundation and a special committee at the UNC School of Medicine. Winners are chosen on the basis of scholastic ability and achievement, personal qualifications, motivation towards medicine, and promise of distinction in the profession.

* * *

A University of North Carolina pathologist has re-

ceived a \$3,500 grant for experimental study of the nature of cholera. The grant was awarded by the Brown-Hazen Fund of Research Corporation.

Cholera is prevalent in Vietnam and other parts of Asia, and the American involvement in Southeast Asia has focused the attention of U. S. medical and military experts on the disease.

* * *

"There seems to be little question that natural aging in humans and the effects one experiences from small doses of radiation share many similarities."

This is just one of the startling conclusions reached by Dr. C. D. Van Cleave, a University of North Carolina professor of anatomy, in a new book prepared for the U. S. Atomic Energy Commission.

Prof. Van Cleave says that if the two processes are found to be enough alike "here might be an excellent opportunity for the first time to simulate the aging process in the laboratory for the purpose of scientific studies."

He also points to evidence that the life span of laboratory animals is often shortened in proportion to the amount of radiation they receive during their lifetime.

Speaking as a scientist in the field of radiation biology, Dr. Van Cleave said about the effects of radiation on humans, "Personally, I don't want any unnecessary exposure to radiation. If radiation therapy such as x-ray treatment is necessary for diagnostic

or therapeutic treatment, then this may outweigh possible ill effects from radiation exposure."

Dr. Van Cleave was named in 1965 by the AEC to write the book he just completed entitled "Late Somatic Effects of Ionizing Radiation."

* * *

Dr. J. George Harrar, president of the Rockefeller Foundation, said in January that worldwide experience with newer contraceptives in mass birth control campaigns has convinced increasing numbers of field workers and population specialists of the need "to go back to the laboratory" for a better contraceptive method badly needed to improve the effect of national family planning campaigns.

New and improved methods, Dr. Harrar noted, can only come from intensive and extensive research in basic reproductive biology.

As a step in this direction, Dr. Harrar announced the Rockefeller Foundation has appropriated \$2 million to the University of North Carolina, Chapel Hill, for the research that may develop leads toward improved birth control methods.

The Foundation appropriation will enable scientists of ability and experience to join a newly organized University center for research and basic reproductive biology. They will appropriate new methods in cell and molecular biology to fundamental problems of basic biology.

The appropriation will be advanced to the University over a five-year period.

* * *

The Public Health School of the University of North Carolina recently announced plans for its "Seventh Annual Art Exhibition" to be conducted at Chapel Hill from March to December, 1969.

The art exhibit in the School of Public Health is open to all practicing artists of North Carolina and nearby states.

The purpose of the exhibition in a health-oriented teaching, research, and public service school is "to demonstrate the school's commitment to man's healthy environment and to establish the importance of beauty in this environment."

* * *

Sixty-six Greensboro physicians have been appointed to the part-time faculty of the University of North Carolina School of Medicine, it has been announced by Dr. Isaac M. Taylor, dean of the medical school.

Dr. Taylor said he is pleased to welcome each of these physicians to the faculty and that their appointments are in recognition of their contributions to the UNC teaching programs at the Moses H. Cone Memorial Hospital in Greensboro.

The teaching programs were established in July, 1967 to provide medical students from the University with clinical experience in an outstanding community hospital, to improve continuing education for local physicians, and to establish graduate medical education programs at Moses Cone Hospital, with emphasis on preparation of physicians for family practice.

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N. C. Memorial Hospital Chaplain Fred W. Reid, Jr. has been elected a member-at-large to the executive committee of the College of Chaplains, American Protestant Hospital Association.

While attending the Association meeting in New Orleans, Chaplain Reid presented a paper entitled, "The Chaplain as Department Head or Administrator." The paper will be published by the College of Chaplains.

Reid is past president of the North Carolina Chaplain's Association. He is a member of the Clinical Research Advisory Committee of North Carolina Memorial Hospital, nominating committee of the College of Chaplains, American Protestant Hospital Association, the Committee of Medicine-Religion of the North Carolina Medical Society, and a member of the Committee on Institutional Ministries of the North Carolina Council of Churches.

* * *

Forty-three newly employed local public health nurses returned to the classroom for a University of North Carolina School of Nursing shot course in January.

The course, "Professional Improvement of Registered Nurses Employed in Local Public Health Agencies in North Carolina," was conducted by the UNC Nursing School's Continuing Education Program.

The course was co-sponsored by the State Board of Health, Community Health Division, and the State Board of Higher Education.

NEWS NOTES FROM THE BOWMAN GRAY SCHOOL OF MEDICINE OF WAKE FOREST UNIVERSITY

Dr. Robert L. Tuttle, formerly associate dean, has been appointed academic dean of the Bowman Gray School of Medicine. He will be responsible for all academic programs of the institution.

The position of academic dean was established through a reorganization of the medical school's central administration, a move designed to provide more adequate administrative support for the school's expanding programs and increasing responsibilities.

The reorganization will permit Dr. Manson Meads, vice president for medical affairs and dean of the medical school, to devote more of his time to overall planning, development, and financial affairs of the institution as well as to matters which relate to the medical school's increasing involvement in community and regional health programs.

During 20 years as a member of the Bowman Gray faculty, Dr. Tuttle has served as chairman of the Department of Microbiology, assistant dean and associate dean. Since 1962, he has had major responsibilities in student affairs and medical education.

Dr. Tuttle directed a two-year study of the Bowman Gray Medical curriculum. As a result of this study, a new curriculum will be implemented in September.

The establishment of a Department of Anesthesiology at the Bowman Gray School of Medicine and the appointment of Dr. Thomas H. Irving as chairman of the department became effective Feb. 1.

Anesthesiology formerly operated as a section of the Department of Surgery. The recommendation for change in status was based on the recent advances in this branch of medicine and the rapidly expanding role of the anesthesiologist.

In announcing the change, Dr. Manson Meads, vice president for medical affairs and dean of the medical school, said that the formation of the new department (the 15th at the medical school) not only follows a current trend—51 other medical schools now have departments of anesthesiology—but it recognizes the "remarkable work of Dr. Irving in developing a section that meets all of the criteria for departmental status."

Dr. Irving, who joined the Bowman Gray faculty two years ago as professor and director of the section on anesthesiology, looks upon the change in status as an opportunity to recruit new faculty members and to develop further the new department's programs of teaching, research and patient care. Anesthesiology now has a five-man faculty.

* * *

Eleven members of the Bowman Gray faculty are listed in the first edition of "World Who's Who in Science," released recently by A. N. Marquis Co., Chicago, Ill.

The 1,855-page volume contains approximately 30,000 biographical sketches of "prominent scientists from antiquity to the present time." Scientific contribution was the prime standard for acceptance or rejection.

Bowman Gray scientists included in the listing are Dr. Camillo Artorn, professor emeritus of biochemistry; Dr. William H. Boyce, professor and director of the section on urology; Dr. Harold D. Green, professor and chairman of the Department of Physiology; Dr. A. Sherrill Hudspeth, assistant professor of surgery; and Dr. Norman H. Leake, research associate professor of reproductive biology.

Also, Dr. J. Maxwell Little, professor and chairman of the Department of Pharmacology; Dr. Frank R. Lock, professor of obstetrics and gynecology; Dr. Hugh B. Lofland, Jr., professor of pathology; Dr. I. Meschan, professor and chairman of the Department of Radiology; Dr. Robert P. Morehead, professor and chairman of the Department of Pathology; and Dr. B. Lionel Truscott, professor of neurology.

* * *

Eight college students from North Carolina have been selected to receive Reynolds Scholarships for study at the Bowman Gray School of Medicine.

The scholarship program, sponsored by the Z. Smith Reynolds Foundation, will provide each recipient \$14,000 during his four years in medical school. In addition, the foundation will supplement each scholar's internship salary, during his fifth year of medical education, providing him an income of \$5,000 for that year.

Selection of the scholars is made by the medical school's committee on admissions on the basis of character, scholarship, potential as physicians and financial need.

The scholars, who will enter the Bowman Gray School of Medicine in September, are David S. Anderson of Thomasville, Wake Forest University; D. Eric Blackwell of Mars Hill, a graduate of Duke University and presently a student at Union Theological Seminary; Robert H. Butler of Gastonia, University of North Carolina at Chapel Hill; and C. Samuel Fulk of Pilot Mountain, University of North Carolina at Chapel Hill.

Also, Kenneth R. Gallup, Jr. of Sanford, Davidson College; J. Gregg Hardy of Lexington, University of North Carolina at Chapel Hill; Paul A. Holyfield of Mount Airy, University of North Carolina at Chapel Hill and J. Lawrence Rouse III of High Point, University of North Carolina at Chapel Hill.

* * *

Dr. Clark E. Vincent, professor of sociology and director of the Behavioral Sciences Center, is one of the major contributors to the recently published "International Encyclopedia of Social Sciences." The 17-volume encyclopedia is described as "the first comprehensive reference work on the social sciences to appear in more than 30 years." The work includes Dr. Vincent's article on "Illegitimacy," a condensation of "Unmarried Mothers," a book he wrote in 1961.

* * *

Dr. James F. Toole, professor and chairman of the Department of Neurology, is editor of "Current Concepts of Cerebrovascular Disease," a quarterly scientific publication of the American Heart Association, Inc.

* * *

Dr. Bill J. Kittrell and Dr. Martha Ann Tilson La Via received recent appointments to the faculty of the Bowman Gray School of Medicine.

Dr. Kittrell, presently a resident in otolaryngology at North Carolina Baptist Hospital, was appointed instructor in otolaryngology. His appointment will become effective July 1. He holds the A.B. degree from the University of California and the M.D. degree from the Bowman Gray School of Medicine.

Dr. La Via, who holds the B.S. degree from the University of Illinois and the M.D. degree from the University of Colorado Medical School, was appointed clinical instructor in pathology.

* * *

Dr. I. Meschan, professor and chairman of the Department of Radiology, recently was visiting professor at Baylor University School of Medicine and at the University of Texas Medical Schools in Dallas, San Antonio and Galveston. He lectured on the following topics: "Systemic Manifestations of Rheumatoid Arthritis;" "Roentgen Signs of Cerebral Angiography;" "Correlated Pathology and Radiology of Collagen Diseases" and "Renal Physiology as Investigated with Radioisotopic Split Function Studies."

Dr. Robert M. Cooper, assistant professor of medicine, participated in a meeting of the American Federation for Clinical Research Feb. 1 in New Orleans, La. He presented a paper on "Characterization of a New Hemoglobinopathy: Hemoglobin Memphis/ Sickie Cell Disease."

AMERICAN COLLEGE OF OBSTETRICIANS AND GYNECOLOGISTS

Dr. Robert A. Ross of the University of North Carolina School of Medicine will be installed as the twentieth president of the American College of Obstetricians and Gynecologists at the annual meeting of the College to be held in Bel Harbour Florida April 28-May 1. The installation will take place at noon, Wednesday, April 30, following the annual business meeting and induction of new fellows. Dr. Ross will deliver his inaugural address at this time.

NORTH CAROLINA BLUE CROSS AND BLUE SHIELD, INC.

The Medical Society of the State of North Carolina has appointed Dr. Kenneth Durham Weeks of Rocky Mount to the Board of Trustees of North Carolina Blue Cross and Blue Shield, Inc.

Dr. Weeks, in group practice of internal medicine in Rocky Mount, was named to the Blue Cross and Blue Shield board by the Medical Society to fill the unexpired term of the late Dr. Charles T. Wilkinson of Wake Forest. Dr. Wilkinson, who died in October, served the board ten years.

Dr. Weeks is an active staff member of the Park View Hospital and the Rocky Mount Sanitarium. For the past three years, he has served as chairman of the Medical Liaison Committee in the development of the Nash General Hospital, currently under construction.

* * *

North Carolina Blue Cross and Blue Shield, Inc., has contracted with the North Carolina Department of Public Welfare to serve in an administrative and claims processing capacity to implement the state's new Physicians Service Program which became effective Jan. 1. John Alexander McMahon, the Blue Cross and Blue Shield president, announced the agreement.

The new program, authorized by the 1967 General Assembly, provides for state payments, to the extent of available funds, for services rendered by physicians to indigent patients certified by the Department of Public Welfare.

The State Medical Society's Advisory Committee to the North Carolina Department of Public Welfare, under the chairmanship of Dr. William MacLaughlin of Conover, will serve in an advisory and consultant capacity to Blue Cross and Blue Shield and to the Welfare Department on implementation, administrative, and procedural matters, according to McMahon.

Instructions to physicians on patient eligibility and the methods of reimbursement have been prepared and distributed by Emmett L. Sellers, Director of the Division of Medical Services, North Carolina Department of Public Welfare.

NORTH CAROLINA HEART ASSOCIATION

James A. McFarland, M.D., project director of the Cardiopulmonary Resuscitation Project of the Regional Medical Program, has announced the appointment of Mrs. Mary C. Davidson of the North Carolina State Nurses' Association, Mr. J. Crenshaw Thompson of the North Carolina Hospital Association, and Dr. Michel Bourgeois-Gavardin of the Medical Society of the State of North Carolina to the Cardiopulmonary Resuscitation Project Advisory Group.

The appointment of the representatives of these three groups is in keeping with the Regional Medical Program concept of total involvement of health oriented groups in the activities of the Regional Medical Program. The knowledge and counsel of the state's physicians, nurses, and hospitals will add greatly to the success of this vital project, Dr. McFarland noted.

In addition to acting in an advisory capacity, the State Medical Society, Nurses' Association, and Hospital Association will actively support, through their respective organizations, the understanding and acceptance of the Cardiopulmonary Resuscitation Program across North Carolina.

NATIONAL EASTER SEAL SOCIETY FOR CRIPPLED CHILDREN AND ADULTS

The number of crippled Americans receiving Easter Seal services rose to 253,313 last year from 237,787 in the previous year, up 6.5%, according to the 1968 annual report of the National Easter Seal Society for Crippled Children and Adults.

During the same period the number of comprehensive rehabilitation centers increased to 77 from the previous year's 53, up 45%, the report said. Treatment and/or diagnostic centers also increased from 132 to 148.

Other service increases listed in the report, titled "Focus on People," included vocational training, evaluation, and counseling. The workshops in which this service takes place increased from 34 to 42. One aspect of this program was the placement of 747 rehabilitated adults in satisfactory jobs, while another 6,442 are receiving training in various Easter Seal workshops.

NATIONAL INSTITUTES OF HEALTH

The cooperation of physicians is requested in the referral of patients for a study of progeria being conducted by the National Institute of Child Health and Human Development at the Gerontology Research Center in Baltimore, Maryland. The purpose of this study will be to demonstrate whether or not characteristics of aging or senescence in man are shared by patients with progeria.

Needed are children or adolescents with typical features of progeria (cachectic dwarfism, relative normocephaly, normal intelligence, bird-like facies, bilateral coxa valga, hypoplasia of mandible, and hypoplasia of clavicles, and senile-appearing skin) and suspected or proven arteriosclerosis or atherosclerosis. Studies performed will include physiological testing, punch skin biopsy for collagen characterization and fibroblast tissue culture, cardiologic evaluation with exercise electrocardiogram, other biopsies if clinically indicated, and chromosomal analysis.

Selected patients will be admitted to the Gerontology Research Ward (at Baltimore City Hospitals) of the Gerontology Research Center. Upon completion of their studies, patients will be returned to the care of the referring physician who will receive a summary of findings.

Physicians interested in having their patients considered for admission to this study may write: William Reichel, M.D., Gerontology Research Center, NICHD, Baltimore City Hospitals, Baltimore, Maryland 21224.

The Month in Washington

A Federal Communications Commission proposal to ban cigarette advertising on radio and television put the issue squarely before Congress again.

In 1965, Congress outlawed any federal or state controls on cigarette ads as a provision of the legislation that made mandatory that cigarette packages carry the warning: "Caution: Cigarette smoking May be Hazardous to Your Health." Proponents of the electronic advertising ban contend that the package warning doesn't make enough impact.

Even before the FCC announcement, some members of Congress were saying that the provision outlawing federal and state controls over cigarette advertising should be allowed to expire on June 3. However, congressional reaction to the FCC ruling was mixed.

The American Medical Association House of Delegates, at its meeting in Miami Beach last December, declined to approve a resolution condemning cigarette advertising on TV. Instead, it adopted a resolution urging that AMA members "play a major role against cigarette smoking by personal example and by advice regarding the health hazards of smoking." The adopted resolution also made it Association policy that the AMA

"discourage smoking by means of public pronouncements and educational programs" and "take a strong stand against smoking by every means at its command."

Anticipating censorship charges—which came promptly from the tobacco and broadcasting industries, and some members of Congress, the FCC said in announcing its proposal:

"We believe that in the case of such a threat to public health, the authority to act is really a duty to act. We stress again that our action is limited to the unique situation and product; that we are unaware of any other product commercials calling for such action, and expressly disclaim any intention to so proceed against other product commercials."

* * *

The Defense Department will call up 437 physicians, 23 osteopaths and 25 optometrists in 1969 in the lowest doctors draft in seven years. The total of 485 medical men compared with 1,126 drafted in 1968, 2,329 in 1967, 2,596 in 1966 and 2,830 in 1965.

The stabilization of the buildup of forces associated with the Vietnam war and with a large number of volunteers made it possible to keep the doctors draft low, the Pentagon said. All of the physicians will go into the Army. Some of the osteopaths and optometrists will go into other services. None will go into uniform until July.

* * *

A nationwide increase in deaths from pneumonia was attributable to the Hong Kong flu epidemic, the federal government reported.

"Pneumonia-influenza deaths increased over what was expected normally over the time the flu epidemic was active," Public Health Service Surgeon General Dr. William H. Stewart said, adding the deaths included all kinds of pneumonia and that the increase was "almost universal across the country."

* * *

The National Communicable Disease Center in Atlanta said pneumonia-influenza deaths are one measurement of the severity of a flu epidemic. Reports from 122 cities during the eight weeks ended February 1

show 5,270 more pneumonia-influenza deaths than the number normally predictable during that period. The epidemic then was "on a downtrend," according to the CDC.

* * *

Robert H. Finch, the new secretary of Health, Education and Welfare, is giving health care costs a high priority in tackling the department's problems.

Even before he was sworn in as secretary, Finch made an unannounced call on chairman Wilbur D. Mills (D., Ark.) of the House Ways and Means Committee, which has jurisdiction over HEW's medicare and medicaid programs. Finch afterwards said his staff would confer with Mills' staff to consider legislation or regulations that could combat higher health care costs.

"His staff and my people are going into this to see what we can do about the skyrocketing costs—especially hospitalization where 70 per cent of the costs are labor," Finch said.

The former California lieutenant governor said he was thinking about the pilot program in his native state—which he called a paramedical program—whereby long stays in the hospitals are shortened by putting people in intensive care centers. If hospital stays could be shortened, he said, "massive savings would result."

Mills was reported as favoring broadened medicare benefits or hospital care to cover disabled workers, who, by nature of their disabilities, receive Social Security payments—but because they are under 65—are ineligible for medicare. He also was reported to be concerned over increases in hospital charges and doctors' fees.

Several members of Congress have expressed concern over increases in the federal costs of medicare and medicaid. The Johnson Administration's budget for fiscal 1970, starting next July 1, allots \$6.9 billion, up \$636 million, for medicare and \$3 billion, up \$600 million, for medicaid.

A bill, introduced by Sen. George Aiken (R., Vt.), with Senate Majority leader Mike Mansfield (Mont.) and Sen. Winston Prouty (R. Vt.), as co-authors, would do away with the present "usual and customary charge

concept," place all physicians on assignment, and reimburse them through the average payment for the same service provided by the local Blue Shield. Deductibles and co-insurance would be eliminated, among many other changes.

The Labor Department reported that medical costs, including both hospitalization and physicians' fees, rose 7.3 per cent for the calendar year 1968.

Three-fourths of the Medicare Part B carriers now are using individual physician fee profiles in determining reasonable charges.

The Social Security Administration said that these carriers, a total of 36, collectively process 80% of the Medicare bills submitted by physicians. Prevailing fees continue as a major factor in the reasonable charges determined by the carriers.

The remaining 14 carriers which have not yet fully developed the individual physician fee profiles, or the computer capacity for using them, are employing other interim techniques. Some use, in addition to prevailing fees, fee schedules; others, relative value scales, or similar techniques, in determining reasonable charges.

The Medicare law calls for individual determinations by the carrier which take into account the customary charges of the physician and the prevailing charges in the locality for similar services. In addition, carriers must assure that the charges determined to be reasonable for Medicare beneficiaries are not higher than the charges for comparable services under comparable circumstances to their own policyholders and subscribers, according to the SSA.

Payment is to be made on the basis of the lowest of those three criteria, or the physician's actual charge, if that is still lower, the SSA said.

"Making a reasonable charge determination involves checking each bill against compiled data on the individual physician's customary charges for similar services and the prevailing level of charges for such services in the locality in which the physician practices," the SSA said.

The shortage of physicians, particularly general practitioners was cited in a government report as a factor in the increase in physicians' fees since World War II.

The Bureau of Labor Statistics (BLS) reported that charges for medical care, including hospitalization, had risen at an annual rate of 3.9% since World War II, while prices of all consumer items combined advanced at a rate of 2.6 per cent per year. The bureau said that medical care prices had risen at a faster rate in recent years, 6.6% in 1966 and 6.4% in 1967.

The report said that physicians' fees, while not advancing as rapidly as hospital charges, had more than doubled in the past ten years. Hospital charges more than quadrupled.

"The rise in physicians' fees during the 1946-67 period is partially due to the general rise in price levels and to the physicians' need for increased income to cover his personal and business costs," the report said.

"This is especially true for the past two years. Doctors have tended to attribute their higher fees in recent years to the general economic conditions and the higher cost of doing business. Nevertheless, some charges clearly reflect the shortage of doctors. With an overload of patients, physicians in some cases have tried to discourage the practice of making house calls by raising the rate for such a service to a level that few patients are willing to pay. The postwar emphasis on medical specialists has also helped to boost physicians' fees since general practitioners have become scarce and specialists, with their extra training are able to command higher fees."

The BLS conceded that its reports on health care costs do not give adequate consideration to improvements in the quality of medical care as reflected in longer life spans, improved and more efficient techniques for treatment, shorter hospital stays, etc.

Two other federal developments dealt with medical care for the poor. The Board of Medicine of the National Academy of Sciences announced the start of a comprehensive, two-year study titled "Health and the Poor." A joint state-federal task force

reported on its study of costs for medical and public assistance programs.

The Board of Medicine named a special panel for its study which will cover: the quantity and quality of medical care the poor now receive; existing federal programs, such as Medicaid, anti-poverty projects, maternal and child health programs, and community immunization programs; future needs and possible programs; and the economics of medical care for the poor.

In Memoriam

Nathaniel Matros, M.D.

Dr. Nathaniel Matros, 64, a well known and outstanding surgeon, died on May 30, 1968, following a long illness. Dr. Matros was affectionately known as "Nat" by many friends and fellow physicians.

He received his medical degree from Marquette University and had a rotating internship at Evangelical Luthern Hospital in Milwaukee, Wis. He came to Asheville in 1931 as a lieutenant in the Army Medical Corps, to complete his surgical residency at the Veterans Hospital at Oteen. After four years he was transferred to the V. A. General Hospital at Aspinwall (Pittsburg, Pa.) as Chief of the Surgical Service. Two years later, in 1937, he entered private practice.

He became a reserve officer in the Navy in 1939 and was called to active duty the following year, being assigned to the U. S. Naval Air Station at Corpus Christi, Texas. In 1941 he saw active sea duty in the Atlantic Command and was involved in seven assault landings, including Eniwetok, Leyte, Saipan, Iwo Jima, Lingayen Gulf, and the capture of Manila. Dr. Matros ended his war career as Chief of Surgery and Executive Officer of the Medical Detachment, U. S. Marine Base, Parris Island. He returned to private practice in 1945.

He has been on the active staffs of St. Joseph's, Memorial Mission, and Aston Park hospitals, and has served as chief of staff and chief of surgery at St. Joseph's Hospital. Dr. Matros was a life fellow of the American College of Surgeons, serving as head of the Credentials Committee for a number of years: The Southeast Surgical Congress and American Abdominal Surgeons Society, American Medical Association, North Carolina Medical Society, and Buncombe County Medical Society. Ill health forced his retirement last December.

His chief hobby was fishing, especially deep sea fishing in the Caribbean; however, he did own property near Asheville with three small lakes that he stocked and fished.

Dr. Matros was highly regarded as a surgeon by the medical profession and greatly loved by his patients and friends. He has served his country faithfully in times of war and has been highly regarded in this community.

Surviving are the widow, Mrs. Lillian Dotson Matros; a daughter, Mrs. Peter Krumps of Atlanta; a son, Michael John Matros, a student at Duke University.

Be it resolved, that the report of this committee be adopted and entered into the records of the Buncombe County Medical Society and that a copy be sent to his family, to the North Carolina Medical Society, and the American Medical Association.

Buncombe County Medical Society

Karl Bushee Pace, M.D.

1888-1968

Dr. Karl Bushee Pace died August, 1968, at the ripe age of 80 years after a life which was filled to the brim with activities, service, and honors. He spent 52 of those years as a citizen of Greenville, North Carolina, where his chief field of interest was the practice of medicine. He was lent to his country for two years of service with the Army in World War I, being discharged with the rank of captain.

His life as a citizen involved leadership, as evidenced by his part in many local affairs. He participated in the establishment of the first hospital in Pitt County, and later was influential in supporting the establishment of our fine Pitt County Memorial Hospital. He served as a director and for several years as president of the old Pitt Community Hospital. He helped in the reorganization of the moribund Pitt County Medical Society and served as its president on two occasions. He was an active member of the North Carolina Medical Society and was appointed to the State Board of Medical Examiners. He was a member of the Seaboard and Tri-State Medical societies and served as president of the latter. He was an early and active member of the North Carolina Academy of General Practice. He was a fellow of the American Medical Association.

The North Carolina State Medical Society selected him as Doctor of the Year in 1954, an honor which led to his election by the American Medical Association as General Practitioner of the Year, at the 1954 convention.

He was a long-time member of Jarvis Memorial Methodist Church and was an officer in it most of the time.

For 30 years or more he served as a director of the State Bank and Trust Company. He was a director of the Chamber of Commerce and for 12 years served on the Greenville Utilities Commission.

As a veteran he helped to organize the Pitt County Chapter of the American Legion and served as its Commander. He was an active Rotarian and was president of the local chapter. He was also a member of the Executives Club.

Professionally, he served as company physician for the National Carbon Company and also as local surgeon for the Atlantic Coastline Railroad.

With all his professional, civic and religious activity, he always found time for his family and contributed to the happy Christian home shared by his lovely wife and three fine sons. His life and his wide and deep interest in people and their problems have been an

inspiration to each of his sons to live a life of service.

With such a life history, it can well be said of Dr. Karl Busbee Pace as Tennyson wrote in "Ulysses": "I am a part of all that I have met."

In the loss of such a professional confrere, the Pitt County Medical Society recognizes that it has lost a valuable member, an irreplaceable counselor, and a true friend of every member. Therefore be it

Resolved, That the Society expresses its keen sense of loss in the passing of Dr. Pace;

That it commend his life of dedication to the practice of medicine and service as a citizen to all its members for emulation; and

That copies of these resolutions be presented to the family of Dr. Pace, and that they be enrolled in the minutes of the Pitt County Medical Society and published in the North Carolina Medical Journal.

Dr. Everett Hews Ellinwood

September 8, 1901—January 23, 1969

In 1965 as health director for Guilford County, Dr. Everett H. Ellinwood received the Rankin Award, a state recognition for outstanding contributions in the field of public health. Under his leadership the departmental program was cited twice as the most outstanding in the state. The justification for such recognition is attributed to the many innovations and contributions realized in Guilford County during his tenure of service from July, 1949, to January, 1969. Some of these contributions were:

- First Mental Health Unit
- First Mobile Dental Unit
- First Bedside Nursing Program
- First program participating in internship training and outpatient care
- First county to use home health aides
- First county to offer comprehensive health care for children of low income families
- First county to adopt an air pollution control ordinance.
- 1600 students received training in the department
- Staff increased from 58 persons to 242
- Participated in national and local research projects
- Set state and national standards in environmental control measures

Therefore, be it

Resolved, That the Guilford County Medical Society recognize these contributions and pay tribute to the man, his devotion to service, and to his dedication toward raising the physical, mental and environmental health levels in the community; and further be it

Resolved, That a copy of this resolution be incorporated in the minutes of the Guilford County Medical Society, and that copies be mailed to the American Public Health Association, the North Carolina Public Health Association, the Medical Society of the State of North Carolina, and the family of Dr. Ellinwood.

Guilford County Medical Society

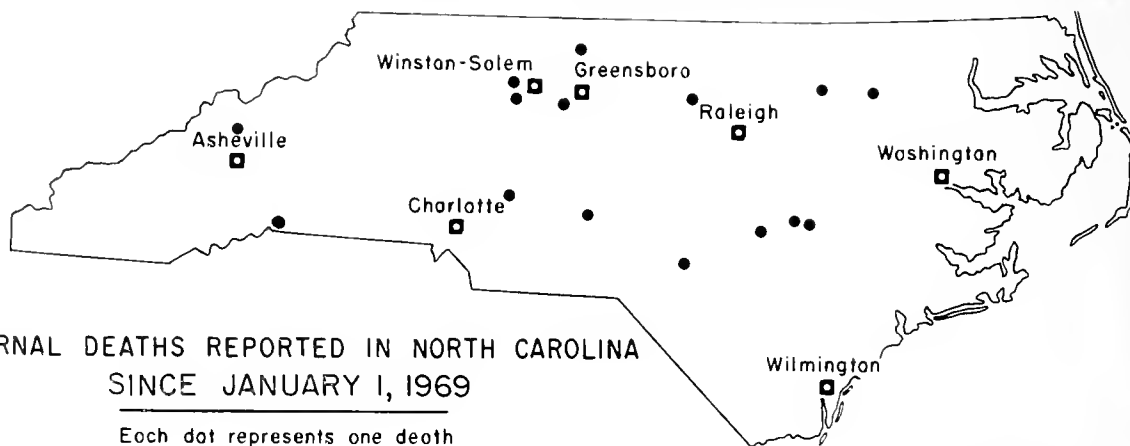
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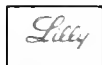
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Open Heart Surgery in a Teaching Community Hospital

FRANCIS ROBICSEK, M.D., PAUL W. SANGER, M.D.,† HARRY K. DAUGHERTY, M.D.

AND EMANUEL BAGBY

The development of the pump-oxygenator and the technique of total body perfusion is undoubtedly one of the principal contributions of modern medicine. Since the first "open" heart operations performed two decades ago, thousands of patients with congenital and acquired heart conditions, heretofore thought to be inaccessible to surgical treatment, have been operated on successfully.

In the early stage of open heart surgery, these operations were confined to a few selected university centers. The ingenuity of the practicing surgeon, however, soon carried the procedures out of this confinement, and now several major community hospitals share the ever-increasing patient load of heart operations.

In this paper we present our experiences in the "open" heart treatment of congenital and acquired heart disease at the Department of Cardiovascular and Thoracic Surgery of the Charlotte Memorial Hospital.

Material

During the past decade more than 1,300 patients have undergone operations on the heart and the aorta in this institution. In 626 of these cases, the "open" technique and cardiopulmonary by-pass were used. The number of operations for each year of the decade is shown in Table 1.

One hundred sixty-four men and 172

women had congenital heart disease, and 159 men and 143 women had acquired disease. The ages of the patients are shown in Table 2. Table 3 shows the classification of patients according to diagnosis.

Indications

Our attitude in selecting patients for open heart surgery has changed considerably during the years past. The simplicity of repair of some of the congenital lesions and the difficulties of providing adequate total body perfusion for larger patients restricted our earlier procedures to congenital cardiac anomalies. The improvements in oxygenator design, the better understanding of the physiology of extracorporeal circulation, and the development of prosthetic valves account for the increase in the number of operations performed for acquired heart disease.

At present our general criteria in the selection of patients for surgery are as follows:

A. Congenital lesions

Congenital anomalies of the heart differ radically from acquired heart disease in proportion to the severity of the process and the seriousness of the clinical symptoms. In acquired heart disease the appearance of clinical symptoms usually marks the beginning of the condition. In congenital heart disease the onset of symptoms may coincide with the final, rapid deterioration of the patient's condition. Therefore, patients with symptomatic congenital lesions should always be considered as potential candidates for open heart surgery.

Surgery for a child who has no clinical symptoms is difficult for the physician to advise and sometimes for the parents to accept. An occasional elderly patient who does

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†Deceased.

Request for reprints to Sanger Clinic, 1929 Randolph Road, Charlotte, N. C. 28204.

This work was supported by grants by the John A. Hartford Foundation and the United Medical Research Foundation of North Carolina.

Table 1
Open Heart Operation Performed at Charlotte
Memorial Hospital, 1958-1968

Year	Congenital	Acquired	No. of Operations
1958	16	2	18
1959	17	1	18
1960	28	3	31
1961	38	12	50
1962	27	14	41
1963	34	25	59
1964	29	24	53
1965	52	66	118
1966	33	36	67
1967	27	44	71
1968	35	75	110
TOTAL	336	302	638

well in spite of an atrial septal defect should not lead us to forget the large number of children and adults who die from heart failure, endocarditis, pneumonia, and so forth. Twenty years ago, whether or not to operate on patients with a patent ductus arteriosus was still widely debated. However, after statistics proved that two thirds of these patients die before the age of 40, and that their life expectancy after the age of 17 is less than half that of the general population, the advantages of surgical treatment became widely accepted. Today, when the operative mortality in uncomplicated ventricular septal defect is no higher than in patent ductus arteriosus, we see no reason not to operate in either case.

Naturally we do not recommend that a child with a patent foramen ovale, mild pulmonary stenosis, or moderate aortic stenosis should be treated surgically. If careful clinical and hemodynamic studies fail to reveal a significant cardiac overload caused by increased blood flow and/or outflow resistance, these patients should be followed conservatively.

Unfortunately some contraindications still remain in the widening field of surgery for congenital heart defects. Patients with pulmonary hypertension exceeding the systemic level and "reversed" shunt, as well as extremely small patients should not be considered for this type of surgery. We seldom perform open heart surgery on children weighing less than 28 pounds, but try to alleviate their condition with palliative pro-

Table 2 Distribution of Cases by Age of Patient	
Age in Years	Number
1	5
2 - 3	55
4 - 5	68
6 - 7	38
8 - 10	39
11 - 15	45
16 - 20	38
21 - 25	29
26 - 30	36
31 - 40	73
41 - 50	102
51 - 60	68
61 - 75	33
Total	628

Table 3
Distribution of Cases by Diagnosis

Diagnosis	No. of Operations
Congenital	
Atrial septal defect (secundum)	114
Endocardial cushion defects	18
Multiple septal defects	8
Pulmonary stenosis	39
Tetralogy of Fallot	32
Aortic stenosis	5
Others	8
Acquired	
Mitral stenosis	96
Mitral regurgitation (with or without stenosis)	63
Aortic regurgitation	40
Aortic stenosis (with or without regurgitation)	51
Multivalvular heart disease	15
Others	37
Total	638

cedures that do not require the open technique.

B. Acquired heart disease

While most of the operations for congenital heart disease could be considered as "curative," patients with acquired heart conditions who undergo a "successful" operation are still left with an abnormal—however well functioning—valve or with a prosthesis. Therefore at present we accept two criteria as indications for surgical treatment: (1) progressive deterioration of the patient's condition in spite of conservative medical management, and/or (2) significant enlargement of the heart demonstrated by x-ray examination. Patients with mitral stenosis, who seldom require implantation of a prosthetic valve, are usually subjected to

Table 4
Hospital Mortality According to Procedure

Operative Procedure	No. Cases	Hospital Deaths	
		No.	Percent
Congenital			
Repair of secundum type atrial septal defect*	108	3	2.8
Repair of ventricular septal defect*	106	2	1.9
Closure of multiple septal defects*	8	0	0
Pulmonary valvuloplasty	39	0	0
Aortic valvuloplasty	5	0	0
Closure of endocardial cushion defects	18	4	22.2
Closure of septal defects*	12	4	33.3
Complete repair of Fallot's tetralogy	32	11	34.4
Others	8	1	12.5
Acquired			
Mitral valvuloplasty	87	5	7.4
Aortic valvuloplasty	8	2	25.0
Mitral valve replacement	70	8	11.4
Aortic valve replacement	75	10	13.3
Tricuspid valve replacement	1	0	0
Multiple valve replacement	15	3	20.0
Surgery on the thoracic aorta in cardiopulmonary bypass	31	10	32.3
Others	5	2	40.0
Total	626	65	10.0

*Pulmonary artery pressure less than 80 mm Hg systolic

operation at a somewhat earlier stage than those with mitral incompetence or aortic valvular disease.

Advanced, decompensated heart disease is not regarded as a contraindication for heart surgery on our service. Reason still dictates, however, that very old and extremely debilitated patients, as well as those with associated severe emphysema or renal insufficiency, should not be treated surgically.

Technical Considerations

At the beginning we utilized a set of two Sigmotor* pumps and a helix oxygenator as well as hypothermic total body perfusion. This technique was soon replaced by a Pemco† roller pump, rotating disc oxygenator, and high flow, normothermic total body perfusion. Most recently we have been using the convenient disposable bag oxygenator with increasing frequency.

Most of the congenital anomalies were repaired on a beating heart, without the in-

Table 5
Mortality Associated with Low Risk Procedures

Procedure	No. of Cases	Hospital Deaths
Closure of uncomplicated atrial septal defect	38	1
Closure of uncomplicated ventricular septal defect	42	—
Pulmonary valvuloplasty	14	—
Mitral valvuloplasty	47	2
Total	141	3 (2.1%)

teruption of coronary blood flow. In the more complicated cases as well as in all acquired conditions, high flow, normothermic total body perfusion was employed. The heart was completely arrested, with no coronary perfusion but protected by topical cardiac hypothermia. In our experience, the heart protected by hypothermia tolerated anoxia extremely well for periods as long as 80 minutes and fairly well for two hours with the aid of five-minute "interim" perfusion. By the use of normothermic body perfusion in place of deep or moderate hypothermia, we saved time formerly spent in cooling and re-warming the patient, the incidence of metabolic disturbances was considerably lessened, and the recovery period was much smoother than in our previous cases. Substituting topical cardiac cooling for coronary perfusion gained further time, and we were able to work on an empty, quiet heart with an operative field unobscured by "coronary return" blood. Hemolysis of a significant degree was not seen in this series, and the occurrence of air embolism decreased significantly.

It is not our purpose in this paper to discuss in detail the surgical technique applied in the repair of different heart conditions. In this connection we refer to our previously published studies on the subject.¹⁻²⁷

Results

The mortality in the 336 operations performed for congenital heart disease was 7.4%; and in the 302 operations for acquired lesions it was 13.2%. These figures include the number of patients lost in the operating room as well as those who succumbed during the period of hospital convalescence.

The operative mortality according to diagnosis is shown in Table 4. The surgical mor-

*Sigmotor, Inc., Middleport, New York.

†Pemco, Inc., Breaksville, Ohio.

tality for some of the "low risk" procedures performed during the last four years is given in Table 5.

Discussion

The 638 operations reported here were carried out by members of our group and by nine senior residents in the Department of Cardiovascular and Thoracic Surgery, Charlotte Memorial Hospital. The results of these operations compare favorably with those reported from most university centers. It is not our intention, however, to advocate that open cardiectomy should be practiced in every major community hospital. There are some definite requirements which should be met before this type of surgery is undertaken.

1. There should be a true need for a center of cardiac surgery in that particular community. Some hospitals acquire heart-lung machines as a status symbol, not realizing that the area need is already well covered by established neighboring institutions. It has also been shown that cardiectomies performed by "occasional" cardiac surgeons carry a prohibitive rate of complications and deaths.

2. The hospital administration should be cooperative and the community willing to underwrite the most significant financial deficit of open heart surgery.

3. There should be a team of interested, properly qualified cardiologists and surgeons, versed in all aspects of cardiac physiology, diagnostics, surgery, and postoperative care. This team should be supported by equally well trained and reliable paramedical personnel.

4. The institution should have a separate and well organized department for the surgical treatment of diseases of the chest, heart, and blood vessels.

5. An adequately staffed and fully equipped diagnostic laboratory is the sine qua non of successful cardiac surgery.

6. It is desirable for the institution to have a well functioning postgraduate training program. The presence of young surgeons in training not only provides the much needed around-the-clock service for the patient, but also spurs the attending phy-

sicians to maintain and upgrade the standards of their daily activities.

7. As we see it, open heart surgery and laboratory research are inseparable. The laboratory is the place where the technical and physiological problems of cardiac surgery can be studied; where the heart surgeon starts and where he returns with questions that are not answered in the operating room. It also serves as a valuable training ground for young surgeons and new procedures.

Conclusion

Community hospitals can no longer be regarded as institutions where only elementary medicine is practiced. Their scope is limited only by the quality of care they are able to render. Open heart surgery—one of the newest and most complicated branches of medical science—should be practiced in major teaching community hospitals if the need exists and if the facilities are available.

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Society, Secretions, and the Superego

ROBERT D. PHILLIPS, M.D.*

When Professor Sigmund Freud, the painstaking research neurologist of the 1880s, became Dr. Freud, the innovative theoretician of psychoanalysis in the early 1900s, a new era began in the relationship between psychiatry and clinical medicine. Subsequently, in the first half of this century, with certain notable exceptions, dynamic psychiatry was inadequately presented by its exponents and inadequately received by the rest of academic and clinical medicine.

Given the content and implications of psychoanalytic theory, it was perhaps inevitable that there would be substantial resistance to its acceptance, and that the style of its presentation would often be polemical. Drawing from a vast classical education, Freud constructed clinical models from the stuff of philosophy, mythology, sociology, and anthropology. These alien concoctions were largely immiscible in the mainstream of medical thought, which still centered on the

cellular pathology of Rudolph Virchow. It is small wonder that to a medical world increasingly oriented to physics and chemistry, Freud's formulations, which were so non-material, could easily appear immaterial. But ironically, Freud himself constantly reiterated the physico-chemical bases of his theory, while some of his more ardent disciples were driving clinical psychiatry toward an overweening and ethereal psychologizing.

In papers spanning the years from 1914 to 1937, Freud wrote: "We must recollect that all our provisional ideas in psychology will some day be based on an organic substructure." (Freud, 1914. *On Narcissism*) and "In the psychical field the biological factor is actually the rock bottom." (Freud, 1937: *Analysis Terminable and Interminable*)

As we approach the last quarter of the twentieth century, the earlier fires have been banked, and between clinical psychiatry and general medicine, diatribe has been replaced by dialogue. Academic psychiatry has been legitimatized as a more holistic

*Presented at the Medical College of South Carolina, Charleston, S. C., July 31, 1968.

Request for reprints to 923 Broad Street, Durham, N. C. 27705.

understanding of disease processes has attended remarkable advances in endocrinology, pharmacology, and electrical neurophysiology. New understanding of the organism's reaction to stress has come as a result of the work by Hans Selye and his ilk, and acceptance of psychoanalytic theory has been greatly enhanced by the findings of Franz Alexander's Chicago group relative to the psychosomatic illnesses. The emergence of the behavioral sciences as a vast interdisciplinary field and the mental health movement spurred by social legislation are recent developments which have tended to popularize psychiatry.

All these favorable factors notwithstanding, the dialogue between psychiatry and general medicine remains essentially a dialogue and not a full engagement. In private practice, in community hospitals, and in the medical schools, there is abundant evidence that both psychiatrists and non-psychiatrists fail to appreciate the possibilities and the limitations of psychiatric theory and practice.

It is the purpose of this paper to attempt a psychiatric construct on which physicians may hang their several hats: clinical practice, research, and teaching. The relevant issues today have very little to do with acceptance of psychiatry and psychiatrists, but have very much to do with the sharing of knowledge and insights, and with the spurs to interdisciplinary research, all of which will tend to the easing of pain and the provision of pleasure for human beings.

If an attempt is made to delineate the components, "Society, Secretions, and Super-ego," one must oversimplify in order to preserve a single point of view—the thesis that all human behavior makes sense, if one but knows how and why our juices are flowing.

The Patient and Society

Society in relation to the individual (patient or self) may be viewed from several different standpoints. Chronologically, the first relationship is microcosmic, and involves the individual and *one* representative of Society, the individual's *mother*; this re-

lationship is essentially one of sustenance, nurture, and protection.

Slightly later, for the individual, society is represented by a group of two or more, subsumed under the label *parents* or *parent-surrogates*. The relationship is still basically nurturing and protecting, but as the individual's mobility and autonomy increase, the protective function must also include *restriction*. Further, the introduction of a third party to the microcosmic twosome introduces *competition* as a relational requirement.

When one's society expands to include biological near-equals or peers, the full range of society's impingement upon the individual is attained. The functions of the microcosmic society and the macrocosmic society then become identical; they are protection, nurture, and reward on the one hand, and on the other, restriction, inhibition, and punishment.

Society, both in its microcosmic and macrocosmic forms, can be said to influence adaptational education positively and negatively. By providing models, rewards, controls and the educational matrix, society enhances adaptation; by restricting exploration and by inappropriate punishment, society limits adaptation.

Intermediate between the nuclear family and global society are a variety of groups which exercise all or some of society's functions toward the individual. These are play groups, school class groups, vocational groups, social groups, and religious groups. Each of these sub-groups conveys to the member-individual certain expectations, and attached to these expectations are particular systems of protection-restriction or reward-and-punishment.

Finally, society can represent itself to the individual in the form of another individual person or personified abstraction. This person would comprehensively include the leader, the great person, or a variety of gods.

Secretions

The leap from sociological abstractions to tangible body fluids, from "society" to "secretions," is softened if one goes by way of the amniotic fluid and the secretions of the mammary gland. And the leap is further

cushioned if one will permit the term "secretions" to include generically all those liquid and semi-liquid components of the human organism.

Except for quantitative concerns, physicians have of late paid too little attention to the symbolic aspects of the five principal external body products. The first three—blood, sweat, and tears—have been hallowed by childbirth and Winston Churchill; the other two, urine and feces, have lain in the unholy purview of the analytic psychiatrist. In a comprehensive behavioral understanding of man, it is important that these bodily substances be rescued from mere literary usage and from the repository of taboo. In a full psychophysiological understanding of man, it is important to remember that elimination and retention of bodily products obey psychical as well as physical laws.

With due respect to the several modes of external elimination, it is clearly in the realm of the internal secretions that one can establish "where the action is." In basic physiology one learned the characteristics and regulation of the various hormonal substances related to the pituitary gland and its several target organs, so-called. As long ago as 1929 the brilliant physiologist, Walter Cannon, had written a monograph entitled "Bodily Changes in Fear, Hunger, Pain, and Rage"; and it required but little imagination on the part of second-year medical students subsequently to conceptualize and marvel at the protective precision of the hypothalamic-pituitary-adrenal axis in effecting the organism for "fight or flight."

Beyond the reciprocally related tropic hormones of the pituitary and of the thyroid and adrenal is still another class of biochemical liquids which might be called "tissue-resident secretions." These include acetylcholine, histamine, serotonin, and norepinephrine, all of which are involved in brain-nerve activity.

Just as there is reciprocity and feed-back between the pituitary and its target organs, so there is between hormonal activity in general and particular behavioral modalities. The study of hormones and behavior is now a highly detailed and complex field, illuminated by the work of ethologists and

the various biological specialists. Whalen, of the Department of Psychobiology at the University of California,¹ writes somewhat aphoristically:

Hormone secretions control behavior, and behavior controls the secretion of hormones. These relationships are not direct, however. Hormones control behavior through their actions on the brain and on peripheral structures, while behavior controls hormone-secretion by producing stimuli that alter the neural activity of the brain.

The Superego

After a comfortable swim in the familiarly clean amines and oxidases of physiology, one must turn again to less manageable abstractions in order to discuss the superego.

This term, which has become a cliché of psychoanalytic jargon, corresponds in a general sense to that acceptable abstraction referred to as *conscience*. Brenner,² a contemporary psychoanalytic expositor, says of the superego:

It comprises the moral functions of the personality. These functions include (a) the approval or disapproval of action and wishes on the grounds of rectitude, (b) critical self-observation, (c) self-punishment, (d) the demand for reparation or repentance of wrong doing, and (e) self-praise or self-love as a reward for virtuous thoughts and actions.

Some wag, perhaps a tipsy psychiatrist, has commented helpfully that "the superego is that portion of the personality which is soluble in alcohol."

For the purposes of this presentation, it is more instructive to consider the superego developmentally. Following such an approach, one first generalizes that the child internalizes those various protective and restrictive functions which the parents, or earliest societal representatives, exercise externally for the individual infant. It is here somewhat immaterial that analysts still argue whether this internalization occurs precipitously at four to five years of age, or whether the process is a gradual one, continuing in decrescendo fashion through the first several decades of life.

It is a fact that of all the mammalian forms, the young of the human species is the most slowly developing, and therefore the most vulnerable and dependent for the most

protracted period. During that period of absolute biological dependency and relative biological inferiority, the young human relies perforce upon its parents for protection and sustenance. When the infant is sheltered from noxious stimuli, is cutaneously warm, and gastrically satiated, it is relatively free of tension, and its juices devote themselves in undisturbed fashion to digestive and anabolic functions. When warmth and feeding are inadequate or irregular, the infant's physiology responds with alarm, with emergency vascular diversion and gluconeogenesis, and with the psychological template for anxiety.

As the child imitates the behavioral patterns of the parents, as he responds to the reactive stimuli of facial and muscular expression emanating from the parents, and as he experiments with the effects of his own movements on the interpersonal environment, so he progressively "codes-in" an elaborate system of stimuli, stimulus-patterns and symbol-systems at a neurophysiological level. These stimulus-patterns and their symbolic representations are correlated in every instance with expectation of either pleasurable or unpleasurable effect, and particular secretory activity corresponds to the particular expectation elicited.

Thus, the child imbibes from the nuclear society (or parents) a dialectic system of stimulus-symbol-response which is permanently incorporated as guardian, judge, conservator, and dispenser of reward and punishment. The fact that this internalized system (the superego) is maintained by and mediated through hormones and other bodily fluids is the crux of human emotional vulnerability. One might say that the superego is the principal control of physiology, inasmuch as the individual is quite as dependent upon his superego's approval and benefits as he is continually dependent upon societal members for the provision of external commodities such as glucose, salts, water, vitamins, and physical contact.

The dependence of the individual upon benign physical contact with another member of society is illustrated by the findings of Rene Spitz and his colleagues.³ Dr. Spitz ob-

served among otherwise similarly treated groups of foundling infants that a group tended by a night nurse who regularly violated the rules against holding the children fared remarkably better, with statistically lower morbidity and mortality rates, than the other infants.

In his system of transactional analysis, Eric Berne⁴ employs the term "stroking" to denote the basic mode of intimate physical contact. He then extends the meaning of the term to include any act of recognition of another's presence. In that light he then proposes the colloquialism: "If you are not stroked, your spinal cord will shrivel up."

If one is externally dependent upon other people for stroking, one is also literally dependent internally upon strokes from that representative of others, the superego. Hippocrates gave us the tip-off when he used the term "melancholia" to indicate a correlation between mood and secretory activity. In transactional paraphrase he might have stated: "If your superego is displeased with you, your biliary flow will be retarded."

The superego is both the bridge and the buffer between the biological individual and that corporate self-interested entity called "society." The organism exists not only to accommodate with appropriate secretions to the stimuli originating in society and the natural world, but to express as well its own self-originating stimulations which arise on a metabolic instinctual level. These autonomous stimulations, which are dynamically inherent in the organism, are referred to as "instinctual impulses." Tinbergen,⁵ the ethologist, has gathered considerable experimental evidence to support his position that activity arises spontaneously within neural tissue. If nervous tissue *does* beat spontaneously without input, then an early Freudian idea is incorrect in supposing that the ego and superego represented only developmental precipitates, consequent upon the collision of raw instinctual force with society.

This line of argument emphasizes biologic impulse as the central dynamic force in life. From that standpoint, one might suggest that the healthiest superego is that which achieves a compromise between maximum

gratification of impulse and maximum protection of the organism within society. All of the functional neuroses and psychoses involve too much or too little superego, too little or too much impulse control, and a pattern of secretory response which is too extravagant or too retarded.

One searches in vain for a neuroanatomical locus of the superego, but clearly its functions correlate with the phylogenetically more recent segments of the brain—what are referred to commonly as “the higher centers.” Mortimer Ostow⁶ has made speculative attempts to relate brain structures functionally to psychoanalytic theory. He believes that the globus pallidus of the basal ganglia is the source of instinctual energy, and that the subjacent neostriatal structures (the putamen, caudate, amygdaloid, and claustrum) serve a modulating function toward rising impulses. The neostriatum receives influences from the more peripheral thalamus and cortex, and these influences further modulate and modify impulse. As a specific area, the temporal lobe and its rich audiovisual network is concerned with the attenuation of percepts to a level of comfortable reception. Parenthetically it may be observed that LSD-25 abolishes this percept attenuating mechanism, with consequent “trips” into vivid sight and sound. “The neuroanatomy of the superego,” as such, exists then only as the composite of all those attenuating, modulating, buffering influences exerted up and down the neuraxis against the undiluted thrust of instinctual energy.

Thus the human organism must be understood as both impulse man and social man drawing creativity from the fountain of his globus pallidus, but having his energies moulded and modified by the ethical concerns of the larger society and of his own superego.

Legend has it that the consummate Georgia politician, Eugene Talmadge, would, on those occasions when his cronies were excessively feeling their sovereign oats, snap his galluses and say: “Remember, boys, the Feds have the A-bomb!” Talmadge might have, for the sake of psychological complete-

ness, added that “the Feds have the grant money” as well.

In metaphorical terms, it is the intrapsychic threat of the superego's A-bomb and the threat of withholding narcissistic grants which lie at the heart of psychopathology.

People have always known experientially that the voice of angry father or the absence of indifferent mother occasioned disquieting sensations in their bodies generally, and in their gastric areas particularly. It remained for this knowledge to gain experimental basis in 1822 when a young frontier soldier named Alexis St. Martin accidentally shot himself in the stomach and created a prominent gastric fistula. During the next eight years his medical benefactor, William Beaumont, an Army surgeon, made detailed observations on various aspects of gastric activity, including that influenced by situational emotional disturbances.⁷

More recent experimental evidence was gained by Stewart and Harold Wolff⁸ from their patient “Tom,” whose post-stricture gastrostomy was elaborately studied. When a particular person whom “Tom” disliked came to the laboratory and spoke critically to the subject, his gastric pouch became engorged and flushed, and acid production rose twofold. Under conditions which were startling or physically frightening to “Tom,” his gastric mucosa became pallid.

The crucial issues of hostile dependency have, in our time, been elucidated in a psychosomatic (or psychophysiological) context by Franz Alexander.⁹ He emphasized that the valid correlations between emotional factors and specific pathology in peptic ulcer, asthma, migraine, ulcerative colitis, thyrotoxicosis, diabetes mellitus, and rheumatoid arthritis lay between “certain emotional constellations and certain vegetative innervations.” Ultimately, Alexander could say, the specific form of these diseases-of-adaptation depended on whether the organism prepared to fight for its needs with the invocation of the sympathetic nervous system, or whether the organism withdrew from conflict and meekly, sought aid from others, presenting a parasympathetic predominance. It is proper to associate the psychophysiological dis-

orders with attempts at too much self-reliance or with attempts to exploit excessive dependence on others.

Civilization has more discontents, however, than that psychophysiological spectrum which is familiar and congenial to medical ears. Beyond that spectrum lies the whole range of disorders in society and in the individual which are tacitly called emotional problems; these problems are the special concern of the sociologists and the psychiatrists.

It was noted earlier that society can represent itself to the individual in the form of a sub-group or of a specially endowed "great person." One such sub-group is a nation-at-war, in which instance the taboo on killing is suspended, and indeed replaced, by reward for selective savagery. Another sub-group with vast influence on the life style and anxiety level of its members is the vocational group, well illustrated by the academic community, which offers institutional security, but which displays conspicuously the Damocletian motto: "Publish or perish!" The phenomenon involved here is the modification of a group of individual superegos by a special collective interest.

That the superego is modified both for weal and for woe through identification with "the great person" is illustrated on the one hand by religious conversion, and on the other by the sharp rise in the national suicide rate following the self-inflicted death of Marilyn Monroe.

Schematically lying between emotional diseases of the physiology and emotional diseases of currently impinging society, are the purer psychological dysfunctions. The functional neuroses and psychoses involve intra-psychoic disequilibria established in childhood, and they involve disharmony between the individual's superego and the rest of his personality. These illnesses are illustrated by a promising professional baseball catcher who develops a muscular inhibition and then a phobia toward throwing the ball back to the pitcher; by a dentist who becomes obsessed with the fear that his operative hand will tremble; by the college football player agonizing over his persistent enuresis; by the physician who vomits when he

anticipates public speaking; and by the wife and mother who alternates between manic flights and profound depressions.

It is the special task of the psychotherapist to aid *these* individual victims in modifying their superegos. That this task is tedious and time-consuming becomes understandable when one recognizes that a substantial revision of the physiology is required. The psychotropic drugs have long since proved their capacity to lower anxiety, to modulate percepts, to mobilize energy and lift depression, but neither they nor the suppressive physical therapies can effect the reconditioning of an inappropriately responding physiology.

Clearly there are not enough psychotherapists available to meet the anxious needs of society. It may be said that a principal aim of the medical profession is to promote a more salutary flow of "secretions." If this goal is to be fully pursued, then all physicians must concern themselves with all the secretions.

Conclusion

It is proposed that a psychiatric construct be attempted by which general physicians can orient their concerns of teaching, research, and clinical practice.

In the teaching of medicine it should be clear that those distinctions are hurtful which ask: "Is this disease organic or functional?" A more proper question might be, "What are the acute and chronic emotional factors which effect this person's physiology and morphology?" In the postgraduate teaching of psychological medicine, the general practitioner and non-psychiatric specialist must be provided with more comfortable and reliable tools for assaying emotional factors than are now available to them.

In research, the frontier is open and inviting, not only in the special areas of learning theory, therapeutic reconditioning, and group dynamics, but also in those garden variety conditions such as insomnia, obesity, and menstrual and sexual dysfunctions, all of which comprise large numbers of "chief complaints."

And finally, in clinical practice the surgeon, the internist, the pediatrician, and the

gerontologist must be able and willing not only to translate emotional cause into hormonal effect, but also to bear the burden of representing a "great person" to his patient. The physician still has an immense capacity beyond his technical skill to produce in "society" healthy modifications of "superego" and a more orderly flow of "secretions."

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The Use of Prosthetics in Surgery of the Hip

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Modern surgery of the hip joint had its beginning in the early 1930s, when Smith-Petersen¹ and Johansson² independently described the use of a nailing device to prevent rotation of fragments in intracapsular fractures of the femoral neck. Prior to this time, fractures of the hip, especially in the elderly, were often devastating, requiring tedious and cumbersome treatment and prolonged immobilization.³ Smith-Petersen's and Johansson's reports have been followed by more than 30 years of development and technical sophistication in surgery of the hip joint. Among the many modifications of internal fixation devices that have been developed are multiple wires, pins, lag screws, compression springs, ordinary screws, single-flanged nails, and collapsible nails.⁴

Despite these advances, intracapsular fractures of the neck of the femur have been called the "unsolvable fracture,"⁵ because the incidence of nonunion, especially in the aged, has remained remarkably constant and discouragingly high.^{5,6} Compounding the problem is that although the period of immobilization is significantly reduced with internal fixation devices, a minimum of four to five weeks is required for strong fibrous union or bony callus formation.⁷ Such immobilization is fraught with the ever-present danger of death from hypostatic pneumonia and other causes. Even after

bony union has occurred, aseptic necrosis of the femoral head has remained a significant problem.⁸ Adequacy of treatment seems to play no role in the development of aseptic necrosis, and its incidence in intracapsular fractures of the femoral neck is reportedly between 25% and 40%.⁵

Interest in prosthetic replacement of the femoral head dates back to the latter 1930s, when A. T. Moore of Columbia, South Carolina presented a remarkable case report.⁹ For some months he had been treating a large Negro man for a pathologic fracture of the femoral neck secondary to a giant-cell tumor. Five corrective operations had failed miserably, and the patient would not hear of amputation. Dr. Moore consulted Dr. Harold Bohlman of Baltimore, who had had some experience with prosthetic replacement. It was decided to replace the upper end of the femur with a vitallium replica. The operation was tedious and recovery slow, but the result was excellent.

The same year Smith-Petersen¹⁰ reported success with a vitallium arthroplasty for replacement of the acetabulum, and this proved to be a milestone in the use of foreign materials for anatomic substitution in the human body.¹¹ In 1947 Jaenichen and Collison¹² developed a stainless steel prosthesis which was used with some success in replacement arthroplasty in acute fractures of the femoral neck.

Reports on the use of femoral head prostheses were for the most part sporadic and

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limited until 1950, when Jean and Robert Judet,¹² noted two orthopedic surgeons reported a series of 300 consecutive arthroplasties performed for various disorders. The authors believed "... that a more rational arthroplasty would consist of replacement of the femoral head by one of the same dimensions, solidly fixed to the femoral neck." The use of the plastic Judet prosthesis later fell into disrepute because of mechanical and biophysiologic failures of the prosthetic materials,¹³⁻¹⁷ but for the first time a large series with initially encouraging results had been reported. Since then many prostheses have been designed, and this device has achieved a permanent place in the armamentarium of the orthopedist.^{18,19}

There are primarily two types of femoral head prostheses, the stem type and the intramedullary device (fig. 1). The former consists of a replica of the femoral head and a stem to be anchored in the femoral neck and laterally in the shaft. The intramedullary type is a replica of the femoral head and neck and a stem which is anchored in the medullary canal of the femur.²⁰ In recent years the intramedullary prosthesis has come to be used almost exclusively,¹⁷ and vitallium has become the metal of choice because of its ability to remain unchanged in the body for extended periods of time.²¹

Recent literature in orthopedics contains numerous reports of the successful use of femoral head replacement arthroplasty in fractures of the hip,^{7,16,22,23} osteoarthritis,²⁴⁻²⁶ and rheumatoid arthritis.²⁷ This paper reports the use of 154 femoral head prostheses at the North Carolina Baptist Hospital in the past 15 years.

Materials and Methods

The records of one hundred fifty-four patients who underwent prosthetic replacement of the femoral head between 1950 and 1965 were studied. Arthroplasty was performed in patients with fresh fractures of the femoral head and neck, old fractures complicated by aseptic necrosis and non-union, osteoarthritis, and other conditions as will be discussed later. These operations were performed by several different resi-



Fig. 1. A. Judet stem-type prosthesis. B. Eicher stainless steel prosthesis. C. Thompson vitallium prosthesis. D. Moore vitallium prosthesis. B, C, and D are intramedullary prostheses.

dent and attending orthopedists, and a variety of prostheses were employed. The charts of the 154 patients were reviewed in detail to ascertain the indications for surgery, complications, surgical approach, and type of prosthesis used.

In August of 1965 each patient was sent a questionnaire concerning his rehabilitation after the operation. Included were questions regarding pain, range of motion, ambulation, and return to gainful employment. Most important was the patient's satisfaction or dissatisfaction with the procedure. Forty patients responded to the questionnaire, and another 20 forms were filled out and returned by members of the patient's immediate family. In the latter cases, the patients had expired or were in institutions for the aged. Total response to the questionnaire was approximately 40%.

In instances where there was no response, the patient's referring physician was sent a questionnaire concerning the patient's rehabilitation. Outpatient and physical therapy records were scrutinized in detail and private physicians' office notes were reviewed.

Selected patients were asked to return for physical examination and x-ray studies. Sixteen patients died within the first year after surgery; of the remaining 138, a follow-up of 1 to 16 years was obtained on 81 patients (60%).

Indications for Arthroplasty

There are no clear-cut, absolute indications for femoral head arthroplasty,¹⁸ al-

Table 1
Indications for Arthroplasty

Indication	Number of Patients
Fresh fracture	75
Fracture with nonunion or aseptic necrosis	52
Osteoarthritis	19
Rheumatoid arthritis	3
Pathologic fracture	3
Aseptic necrosis due to irradiation	2
Total	154

though the indications are becoming more precise.¹⁷ A survey of orthopedic surgeons conducted in 1959 by a special committee¹⁷ revealed the following indications: subcapital fractures in patients over 60 years of age; aseptic necrosis of the femoral head; nonunion; hypertrophic and traumatic arthritis; and rheumatoid arthritis. Although routine use of the device in the aged has been disputed,²⁸ there is general agreement that its use as the primary treatment in this group is justified. The case is much stronger in hip fractures complicated by nonunion or aseptic necrosis, since prosthetic replacement offers the earliest and greatest return of function.¹⁵ Good results have been reported with its use in osteoarthritis of the hip joint,²⁴⁻²⁶ although the most satisfactory results may naturally be expected where the arthritic process involves the head of the femur alone. The use of prosthesis in rheumatoid arthritis has given equivocal results, and in general there seems to be little enthusiasm for its use in this disease.²⁷

In 75 of the cases in this series, hip prostheses were used after fresh fractures of the femoral head or neck. Patients in this group ranged in age from 42 to 90 years, for an average of 73 years. Two of the 75 had bilateral prostheses. Three patients had severe rheumatoid arthritis, two had aseptic necrosis secondary to irradiation, and one had a pathologic fracture secondary to metastatic adenocarcinoma of the breast. One patient had bilateral Charcot joints and a pathologic fracture due to tertiary syphilis, and one had a primary mesenchymal tumor of the femoral head. Fifty-one patients had old fractures complicated by nonunion or aseptic necrosis. Nineteen patients

Table 2
Types of Prostheses Used

Prostheses	1950-1959	1960-1965	Total
F. R. Thompson	36	35	71
Eicher	46	6	52
Moore	0	27	27
Jaenichen-Collison	5	0	5
Townley	1	0	1
Judet	3	0	3

had osteoarthritis, one of whom required bilateral prostheses.

Surgical Approach and Selection of Prosthesis

Surgical approaches to fractures of the hip joint are myriad, but basically they may be classified as anterior, lateral, and posterior.²⁹ The preferred approach at this institution is a modification of the posterolateral approach described by Gibson.³⁰ The incision is begun below the posterior superior iliac spine and carried anteriorly to the anterior portion of the greater trochanter and inferiorly down the side of the thigh. The gluteus maximus and tensor fascia lata muscles are incised, and posterior capsulotomy is performed. The femoral head is exposed by posterior dislocation achieved by internal rotation of the thigh. The femoral head and neck are then excised, and the stem of the prosthesis is inserted into the medullary canal of the femur.

The selection of prosthetic devices at this institution has, in general, paralleled that of other orthopedists in this country. A few Judet and Jaenichen-Collison prostheses used in the early 1950s are included in this series. During the 1950s the overwhelming majority of the prostheses used were of the Eicher stainless steel or the F. R. Thompson vitallium types. Recently, the use of the Eicher prosthesis has waned, and the A. T. Moore and the F. R. Thompson devices, both made of vitallium, have been used almost exclusively. Currently, the Moore prosthesis is preferred because of its self-locking property, and the Thompson device is reserved for the patient with a small femur.³⁰ Table 2 depicts the use of the various prostheses from 1950 to 1959, and from 1960 to 1965.

Complications

The complications of femoral head arthro-

Table 3
Operative Mortality in Femoral Head Arthroplasty

Case	Age (yrs)	Sex	Concurrent Disease	Time of Death (days after operation)	Cause
1	68	F	Diabetes, high blood pressure, congestive heart failure	7	No autopsy
2	79	M	Severe arteriosclerotic heart disease	14	Pulmonary embolus
3	49	F	None	17	Bronchopneumonia
4	77	F	Diabetes, severe arteriosclerotic heart disease	2	Myocardial infarction
5	53	F	Diabetes, arteriosclerotic heart disease	1	Acute pulmonary edema
6	78	F	Arteriosclerotic heart disease, arteriosclerotic vascular disease	4	Bronchopneumonia
7	81	F	Arteriosclerotic heart disease, arteriosclerotic vascular disease	12	No autopsy
8	75	F	Arteriosclerotic heart disease, arteriosclerotic vascular disease	*	Myocardial infarction

*Died on operating table

plasty other than those associated with surgery in general can be classified as early and late. Early complications include superficial and deep infection, dislocation of the prosthesis, and fracture of the femoral shaft in the region of the intramedullary portion of the device.^{17-21,23,32} Superficial wound infection is of little consequence, but deep infection almost uniformly requires removal of the prosthesis. Dislocation may or may not require a second operation for reduction, and fracture of the femoral shaft may require prolongation of postoperative immobilization.

The late complications of arthroplasty have been beautifully summarized by Wilson.³³ These include failure of material, foreign body reactions, soft-tissue scarring and ossification, and resorption of bone around the prosthesis, both in the shaft of the femur and in the acetabulum. Failure of material and foreign body reactions have been eliminated for the most part by the use of stainless steel and vitallium. Soft-tissue scarring and ossification are rare but do occur. Bone resorption around the prosthesis remains a major problem, though minor degrees may occur without producing symptoms. Major resorption, however, may cause the prosthesis to become loose or protrude into the acetabulum, with subsequent pain and disability. Resorption is enhanced by inflammatory disease, infection, atrophy of bone, and osteoporosis.

The operative deaths at this institution are listed in Table 3. Every patient except

one had concurrent disease which would increase his surgical risk. In addition, there were eight deaths within the first year of discharge. The cause of these deaths were unknown to us, as they occurred outside this institution.

Deep infection proved devastating in each of the 6 cases in which it occurred, requiring removal of the prosthesis. Removal was performed from two weeks to 16 months postoperatively, but the average was two to three months. In another instance, the prosthesis was removed because of intractable pain, and infection was suspected but never confirmed. Fracture of the femoral shaft occurred in three instances at operation. One such fracture occurred three days postoperatively, and another occurred, apparently spontaneously, five months after operation. Dislocation of the prosthesis occurred in 4 cases, in one case immediately after the operation, and in 3 cases one month after operation. In only one case was a second operation required. The complications are summarized in Table 4.

Table 4 Immediate Complications of Arthroplasty		
Complication	Number	Incidence
Deep infection	6	5%
Dislocation of prosthesis	4	3%
Fracture of the femoral shaft	5	3.5%

The late complications of arthroplasty are shown in Table 5. It must be noted that this table does not reflect the true incidence of these complications, since x-ray films were not made in every case after a given inter-

Table 5

Late Complications of Arthroplasty

Case	Age	Indication	Prosthesis	Post-op.	Complication	Symptoms
1.	75	Degenerative arthritis	M	1 year	Acetabular erosion	Pain, limitation of motion
2.	31	Degenerative arthritis	T	3 years	Acetabular erosion	Pain, used crutches
3.	74	Nonunion	E	3 years	Acetabular erosion	Pain, crutches
4.	61	Aseptic necrosis, secondary to fracture	T	1 year	Demineralization around stem	None
5.	38	Degenerative arthritis	T	3 years	Protruso-acetabuli	Pain, crutches
6.	55	Rheumatoid arthritis	T	9 years	Protruso-acetabuli	Severe pain, no ambulation
7.	65	Nonunion fracture	T	2 years	Demineralization around stem	None
8.	39	Rheumatoid arthritis	T	3 years	Protruso-acetabuli	Severe pain, no ambulation
9.	50	Nonunion fracture, left	E	5 years	Acetabular erosion	Two crutches, severe pain
10.	48	Osteoarthritis	T	8 years	Protruso-acetabuli	Much pain, cup arthroplasty
11.	71	Nonunion fracture, left	T	1 year	Demineralization around shaft, erosion of acetabulum	Severe pain
12.	56	Nonunion fracture, right	T	1 year	Demineralization around stem of prosthesis	None
13.	60	Degenerative arthritis	E	3 years	Demineralization around prosthesis, creation of new acetabulum	Pain, limitation of motion
14.	72	Fresh subcapital fracture	T	6 years	Acetabular erosion	Crutches, pain

val of time. Each patient in this group gave x-ray evidence of significant erosion of the acetabulum or resorption of bone around the intramedullary portion of the prosthesis. It is noteworthy that of all patients with significant erosion of the acetabulum had rheumatoid arthritis, and one had osteoarthritis. In all instances of significant erosion about the intramedullary portion of the prosthesis, the F. R. Thompson device had been used.

Results

The very manner in which our data were collected renders precise, objective evaluation of results impossible. More important, however, is the patient's rehabilitation. To what extent could he resume a reasonable level of activity for his age and physical condition? After all, the elderly person cares little about a normal range of motion. His foremost objective is to be as active as possible during the remaining years of life. In evaluating the results, the following general criteria were followed, but with consideration given to the patient's general physical condition, concurrent illness, and efforts toward rehabilitation.

Excellent: The patient walks without an aid, or uses a cane out of doors but no aid indoors. Pain absent or minimal after weight-bearing. Good general range of motion and endurance.

Good: The patient depends on a cane for walking. Moderate pain after weight-bearing and or a Trendelenberg limp when walking. Good general range of motion and endurance.

Fair: The patient uses a crutch or a walker, with full weight-bearing on the affected limb. Range of motion limited and pain frequent.

Poor: The patient's condition is unimproved or worse than it was before operation.

Fresh fractures

Follow-up information of one to nine years was obtained on 31 of 71 patients (43%). The results are shown in Table 6. It is noted that three patients in this group had poor results. One was severely disabled by cerebral vascular disease and senile dementia. Another was bedridden with arteriosclerotic

heart disease and terminal carcinoma of the breast. In the third case, the acetabulum was severely eroded by the prosthesis. This patient required two crutches for walking and suffered severe pain.

Nonunion or aseptic necrosis

Follow-up of 1 to 12 years was available in 31 of the 51 patients in this group. The results are shown in Table 6. It is surprising that the patients with excellent or poor results outnumbered those with good or fair results. Apparently the patients do either very well or poorly. Patients in the "excellent" and "poor" groups were comparable in age, general physical status, and the type of prosthesis used. In the "poor" category, two patients had severe acetabular erosion, and another had acetabular erosion and a fracture of the femoral condyle due to a second fall. One patient sustained a fracture of the femoral shaft at operation. X-ray films were not available in the remaining 2 cases.

Osteoarthritis

The results obtained in the osteoarthritic patients are shown in Table 6. A follow-up of one to eight years was available on 14 of

patient had bilateral prostheses (Fig. 2) inserted five and six years previously. On return, he was noted to have only a slight limp, an almost normal range of motion, and no pain. He walked with a cane outdoors, but required none indoors.

Another patient underwent femoral head arthroplasty for severe degenerative arthritis of the right femoral head. After four years he had a normal range of motion, no limp or pain, and he considers the hip with the prosthesis his "good" hip owing to severe pain on the other side. He is currently being considered for replacement of the left femoral head (Fig. 3).

Rheumatoid arthritis

Follow-up of three and eight years was available on two of the three patients having rheumatoid arthritis. Both patients had protruso acetabuli, suffered much pain, and were almost completely disabled.

Miscellaneous

Follow-up of three years was obtained on one of three patients with postirradiation aseptic necrosis of the femoral head; the result was considered fair. Three patients in whom the primary indication for arthroplasty was a pathologic fracture were studied. One died two years following operation, apparently from metastasis from a poorly differentiated mesenchymoma. Another had a pathologic fracture secondary to irradiation, and the result after three years was considered fair. The third patient had a pathologic fracture apparently due to tertiary syphilis. The prosthesis slips easily in and out of her Charcot joint, but the result is considered fair.

Discussion

From a mechanical standpoint, the principle of replacement is attractive: when a part can no longer function, a logical approach is to substitute another. The application of this principle to the femoral head was a logical step in view of the limitation of internal fixation devices in the older patient.⁹ A broader application of the principle led to use of the device in degenerative conditions such as osteoarthritis and rheumatoid

Table 6
Results

Rating	Fresh		Nonunion and		Osteo-	
	No.	%	Fractures	Aseptic Necrosis	arthrititis	
			No.	%	No.	%
Excellent	9	29%	16	52%	4	28%
Good	15	48%	4	13%	4	28%
Fair	4	13%	5	16%	4	28%
Poor	3	10%	6	19%	2	16%
Totals	31	100%	31	100%	14	100%

19 patients in this group (63%). As already pointed out, the incidence of acetabular erosion was high, occurring in 5 of 14 patients on whom follow-up was available. In one instance, complete protruso acetabuli was noted, and the result of operation was poor. The patient was able to walk only with crutches, and she suffered excruciating pain. The other patient with a poor result had extensive soft-tissue calcification, and was unable to walk without crutches. In the remaining four patients the results were fair to good, depending on the erosion. One



Fig. 3. Anteroposterior view of the pelvis shows the prosthesis to be in excellent position. The left hip shows severe osteoarthritic changes.

disease. Currently, orthopedic surgery is experiencing a wave of enthusiasm for the hip prosthesis.

The use of the device is largely confined to older patients, since friable vasculature renders healing of a fracture less likely and prolonged immobilization is highly undesirable. Unfortunately, these patients, in whom replacement is most needed, have a significantly higher operative mortality and less vigor for the rigorous postoperative rehabilitation. For example, half the patients in this series had concurrent medical conditions which threatened to impede the restorative process.

It is readily conceded that the result of a successful nailing operation is much better than prosthetic replacement of the femoral head in fresh fractures, but with increasing age there is increasing risk of failure. The older patient with nonunion or aseptic necrosis is severely disabled, and a prosthesis is virtually his only recourse. The severely osteoarthritic patient leads an uncomfortable life, and any alleviation of pain with improved ambulation is highly desirable. The hip prosthesis allows the earliest possible restoration of function under these circumstances.

It must be remembered, however, that this device is by no means physiologically ideal.⁹

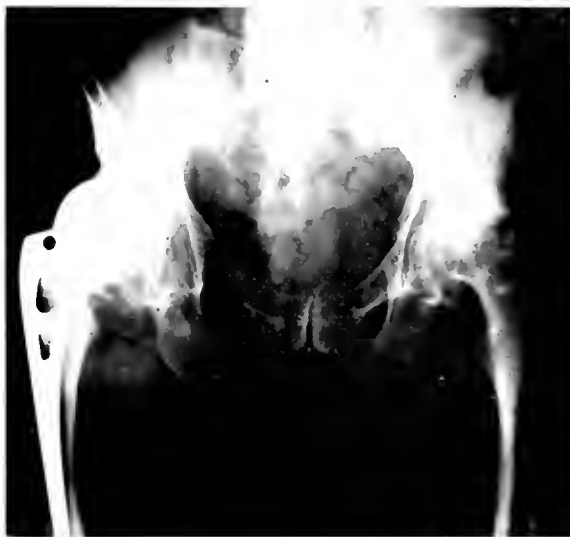


Fig. 2. Anteroposterior view of the pelvis showing bilateral narrowing of the joint spaces, erosion of the acetabulum, and cortical erosion of the femoral shafts by the stem of the prosthesis on the right. This patient, however, walks well and has an almost normal range of motion.

and certain problems arise from its use. Operative mortality is to be contended with, and these patients are certainly a high risk group. Foreign body reactions have been eliminated for the most part by the substitution of vitallium for nylon products and stainless steel.³⁰ The problem of the stem's becoming loose certainly seems to have been reduced in our series by use of the Moore self-locking prosthesis, and indeed no joggle was noted with this appliance.

Infection around the prosthesis is disastrous,^{17,18} and a meticulous sterile technique is essential in preventing this dreaded complication. Erosion of the acetabulum was a major cause of disability in this series of patients, suggesting that a sound acetabulum is necessary for a good result. In both rheumatoid arthritic patients the prosthesis protruded into the pelvis, causing severe disability. A significant number of osteoarthritic patients had acetabular erosion, believed to be the source of their pain, and one case of acetabular protrusion was noted. Subtle arthritic changes resulting from chronic irritation secondary to nonunion or aseptic necrosis were probably the source of acetabular erosion in this group. The low incidence of this complication in the group

with fresh fractures certainly supports the concept that results are best when the primary process involves the head and neck of the femur alone.¹⁵

There is general agreement that the prosthesis is definitely indicated for fresh fractures in patients past 70, and in the older patient with nonunion or aseptic necrosis.^{7,19,22,23} Prosthesis appears to be indicated in certain cases of osteoarthritis, although the long-term results are directly proportional to the care with which the patients are selected. There is generally little enthusiasm for the use of the device in rheumatoid arthritis, and our limited experience would seem to bear this out. Use of the prosthesis seems to be indicated in pathologic fractures, since there is otherwise little hope, owing to the nature of the process.

Summary

The use of the prosthetic femoral head for a variety of indications over a 15-year period is reported. The serious complications encountered with this procedure were operative death, infection about the prosthesis, bony erosion caused by the device, and fracture of the femoral shaft. The procedure seems to be indicated in the elderly patient with fresh fractures of the hip, patients with fractures complicated by nonunion and aseptic necrosis, selected patients with osteoarthritis, and in pathologic fractures of the femoral neck. Experience with the prosthesis in rheumatoid arthritis, though limited, was discouraging.

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The Patient with Severe Chest Injury

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Approximately 20% of all civilian traumatic deaths in this country result primarily from chest injuries. The mortality once the patient has reached the hospital ward, however, is quite low. It has been estimated that only about 10% to 15% of all cases of major thoracic trauma require thoracotomy.

The fate of most patients with severe chest injuries is determined by the responses of the physicians who first attend them. Rather than a detailed discussion of the different kinds of thoracic trauma, this paper will present a general approach to the initial evaluation and management, with emphasis on the critically injured patient. The resuscitative procedures that are required in the vast majority of cases (for instance, thoracentesis, intercostal nerve block, endotracheal intubation, tube thoracostomy, and nasal tracheal suction) are all within the capabilities of the average physician. In a review of 600 traumatic deaths in one series, it was estimated that one third of the patients could have been salvaged had prompt diagnosis and correct treatment been instituted.

Diagnosis

Whenever ventilatory insufficiency, shock, or both develop soon after chest trauma, the initial examination should be directed towards six conditions: (1) open pneumothorax, (2) airway obstruction, (3) flail chest, (4) tension pneumothorax, (5) massive hemothorax, (6) cardiac tamponade.

An open pneumothorax should be obvious, as should any paradoxical movement of the chest wall severe enough to cause respiratory embarrassment, particularly since the flail segment usually involves the anterior or lateral part of the thorax. If the exchange is poor in spite of symmetrical and vigorous respiratory efforts, the airway is probably obstructed. This condition is not necessarily associated with stridor, crowing, or audible, coarse rhonchi. If one hemithorax

is prominent and does not move well with respiration, the problem is probably a large pneumothorax or hemithorax; whereas, if breath sounds in the hemithorax are diminished in volume and excursions are poor, the situation usually represents splinting against painful rib fractures. Both tension pneumothorax and a massive hemothorax may produce a prominent hemithorax with poor excursions, diminished breath sounds and a shift of the trachea to the opposite side. Tension pneumothorax, however, is more likely to be associated with subcutaneous emphysema and prominent neck veins, with the presence of a hyperresonant percussion note; whereas, with massive hemothorax, a dull percussion note is usually noted and the neck veins are not full.

If the initial assessment discloses a diminished pulse but fairly adequate air exchange, consideration should first be given to a massive hemothorax and cardiac tamponade. Cardiac tamponade should be suspected if there is a wound over or near the precordium. Beck's triad of a low arterial pressure, elevated venous pressure, and a small, quiet heart is not always present or readily apparent. Furthermore, a paradoxical pulse represents usually only a fleeting stage in the development of cardiac tamponade and is elicited in only about one third of such cases.

The use of a central venous pressure catheter has proven to be extremely useful in the detection of cardiac tamponade and shock. If the pressure is low, one can assume that there is a low circulating volume and proceed with volume expansion. If, however, the central venous pressure is high in the face of shock, or if it is normal and becomes quickly elevated with infusions, cardiac tamponade should be suspected.

This approach is obviously oversimplified, and attention to lesser degrees of these injuries may be postponed while a search is made for the major threat to the patient's life. An early, quick assessment, however,

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allows more time for a painstaking examination and ancillary measures such as roentgenography. Such an examination, of course, represents only one part of the overall evaluation of the critically injured patient. The main drawback to the approach is with respect to patients whose critical condition is the result of a summation of multiple injuries, none of which are obvious on a cursory examination.

Initial Resuscitation

The simplest effective resuscitative measures must be employed initially. Valuable time may be wasted waiting for the means to apply more involved methods, although the latter may be more effective.

To the unconscious patient with respiratory distress, simply clearing the pharynx and inserting an oral pharyngeal airway may bring significant relief. If it does not, insertion of an endotracheal tube should be the next step. Emergency tracheostomy should be reserved for patients with mechanical obstruction or those to whom simpler measures bring only transient relief. Tracheostomy is too often a time-consuming and risky procedure when performed under suboptimal conditions. Simply covering a sucking chest wound with a sterile towel or a gloved hand will transform it functionally into a closed pneumothorax, which is usually well tolerated. Definitive therapy such as use of a chest catheter and suction to expand the lung can then be administered at more leisure.

A widening of the mediastinal shadow may be the only clue to impending rupture of the thoracic aorta. A diagnostic aortogram should be obtained if this eventuality is suspected and the patient's condition permits.

The mortality for rupture of the esophagus is 80%; two thirds of the cases are discovered at autopsy. Ruptured esophagus should be considered in any severe chest injury, particularly when there is a left pneumothorax with no fractured ribs or penetrating wounds on that side. In two thirds of the cases, esophageal ruptures are secondary to blunt trauma of the abdomen rather than a thoracic blow. Mediastinal widening is usually a late finding in this condition.

but occasionally a stippling of air may be seen in the left cardiophrenic region. X-ray examination after a radiopaque swallow is the simplest way to confirm this suspicion and may well be life-saving.

In the instance of a flail segment, simply placing the hands gently but firmly on the segment, or laying the patient with the injured side down, reduces the paradoxical movements that rob the thoracic bellows of the ability to move air. At a later time, multiple towel clips or pericostal sutures can be utilized for traction on the segment; or, as is more common today, a tracheostomy may be performed and the patient maintained on a positive pressure respirator, if available.

When confronted with a tension pneumothorax the simplest and quickest way to eliminate the dire consequences is to insert an intravenous needle through the chest wall into the involved pleural space, allowing it to equilibrate with atmospheric pressure. This produces an open pneumothorax but with an opening so small that functionally it is little worse than a simple pneumothorax. The patient's condition is thus immediately improved, and there is time to insert a tube into the chest and apply suction to expand the lung.

In patients with massive hemothorax, the first measure is to restore the blood volume, and once this has been performed, to evacuate the thorax through a posterolaterally placed tube. The belief that a hemothorax should not be evacuated is a long-standing misconception. The benefit accrued by allowing the lung to expand, thus enhancing ventilatory function, certainly dictates evacuation rather than allowing the fear of continued bleeding to overrule. If a large volume of blood is removed and the patient's response is unsatisfactory, immediate operation is indicated. Pericardiocentesis relieves nearly all patients with cardiac tamponade initially, and in a significant proportion of the cases is the only intervention that is necessary. I believe that the consensus throughout the country is that if pericardiocentesis has to be repeated, operation is indicated.

X-ray Examination

When possible, an upright chest film

should be taken as soon as the initial evaluation and resuscitation have been achieved. This does not mean that the surveillance of the patient by the physician should cease even temporarily. In addition to the above conditions, there are several in which a successful outcome depends largely on early diagnosis and on treatment. These conditions, although not apparent on physical examination, may frequently be suspected, if not diagnosed, on careful x-ray examination. They include traumatic aneurysm of the thoracic aorta, ruptured esophagus, contusion pneumonitis, ruptured diaphragm, and the like.

A few fluffy opaque areas scattered on the initial x-ray film may provide an early clue to the diagnosis of contusion pneumonitis. Whenever such changes are evident soon after injury, a severe degree of pneumonitis can be anticipated and may be lessened by early tracheostomy and positive pressure ventilation.

Rupture of the diaphragm may be fatal unless diagnosed and treated early. Penetrating wounds of the diaphragm may be suspected from reconstruction of the course taken by the wounding agent. On the other hand, rupture of the diaphragm from blunt trauma is more likely to present an acute condition, with herniation of abdominal viscera into the thorax through the defect. Herniation of air containing viscera through a diaphragmatic defect may be misinterpreted as a high gastric bubble. Similarly, an elevated diaphragm may be more apparent than real and should lead one to suspect diaphragmatic rupture or subpulmonary hematoma. The subpulmonary hematoma will usually show in a lateral decubitus film. Suspicions of a ruptured diaphragm may be confirmed again by radiocontrast studies of the stomach or colon, or by a diagnostic pneumoperitoneum.

The initial chest film may also disclose less obvious degrees of trauma that may have been missed in the initial examination. Even the lack of radiologic evidence of significant intrathoracic injury is valuable information, and provides a base line for later comparison.

Reassessment

During the initial period of evaluation and resuscitation, the patient's cardiorespiratory functions should be continually reassessed to determine whether his condition has deteriorated further or is responding satisfactorily. The simplest and most effective method of assessing the hemodynamic state of the injured patient is to obtain serial measurements of arterial and central venous pressure and urinary output. The rate of urine formation by the kidneys is a valuable guide to adequate perfusion as well as to the two serial pressure measurements. The adequacy of respiratory exchange can be estimated grossly by the patient's color, excursions of the thorax, and the rate, force and volume of air exchange. In institutions where blood gas analysis is obtainable, more subtle degrees of ventilatory insufficiency will become evident by utilizing these measurements. They are particularly desirable in evaluating the need for, or the adequacy of, artificial ventilation by a respirator. If a chest catheter has been inserted, the drainage bottles should be carefully inspected from time to time, since they will provide information concerning the size of air leaks and rate of bleeding from the chest.

The indications for early thoracotomy must be individualized for each patient, taking into account trauma to other systems as well as the patient's general condition prior to injury.

The following conditions are relative indications for early thoracotomy: (1) massive, unrelenting hemorrhage; (2) rapidly reforming pericardial tamponade following pericardiocentesis; (3) widening of the mediastinum with a left hemothorax or an aortogram confirming aortic disruption; (4) ruptured esophagus; (5) traumatic diaphragmatic hernia; (6) significant defects in the chest wall; (7) rupture of the trachea or major bronchus with uncontrollable air leak; (8) gross contamination of the pleural space associated with foreign bodies.

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A History of L. Richardson Memorial Hospital

WILSON O. ELKINS

The story of L. Richardson Memorial Hospital of Greensboro, North Carolina, is one of united community effort, of financial struggle, and of the will to survive.

Charles H. Moore, a veteran Greensboro city school teacher for whom a present day city school is named, is credited with having begun the agitation for a Negro hospital to serve the needs of the city. Dr. S. P. Sebastian, a practicing physician who with physicians J. W. V. Cordice and C. C. Stewart had operated the private Trinity Hospital for Negroes, and layman Watson Law were two other Negro leaders of the pioneer group.

Fund-raising and Organization

On January 20, 1923, the charter meeting of the Greensboro Negro Hospital Association, Incorporated, saw 61 incorporators sign the charter, which later was filed with Secretary of the State of North Carolina, W. N. Everett, on February 12, 1923. As president of the association, Moore enlisted the interest and cooperation of Dr. C. W. Banner, a white physician and businessman for whom the Banner Building in Greensboro is named, and together they launched a city-wide campaign for a needed \$100,000 for the desired hospital. Contributions, including \$5,000 from an Interdenominational Committee fair and \$2,000 from B. N. Duke of New York, were liberal but not sufficient. Therefore, a committee composed of C. H. Moore, Dr. C. W. Banner, Dr. W. C. Jackson (Chancellor of Woman's College), and Dr. S. P. Sebastian presented the case for Greensboro's need for a Negro hospital to Mrs. Lunsford Richardson and her son, H. Smith Richardson. The family of the deceased Lunsford Richardson, Sr., founder of Vick Chemical Company (now Vick Manufacturing Division of Richardson-Merrell, Incorporated), responded generously with \$50,000 plus subsequent gifts.

Organization continued. On December 18, 1923, the charter was amended. The name of George H. Mitchell, who had notarized the original charter and who inadvertently had been included among the incorporators, was deleted from the list of incorporators. The association was to be governed by an elected Board of Directors composed of six white and six colored members, four to be nominated by the Guilford County Board of Commissioners; four by the Governing Board of the City of Greensboro; and four by the Board of Directors. They were to serve four-year terms, six being elected every two years. The Amendment was notarized December 29, 1923, and filed January 2, 1924. On February 5, 1926, the charter was amended again to enlarge the Board of Directors of the nonstock corporation to 16 members split evenly between colored and white. Two white and two colored members were to be selected each by the City Council of Greensboro, by the Board of Commissioners of Guilford County, by the directors of the corporation, and by members of the family of the late L. Richardson. The Board of Directors would fill vacancies. Hospital privileges were to be granted to any doctor "of either race in good and regular standing with the members of his profession, and who is a member of the State Medical Society and a resident of Guilford County."

Construction and Dedication

A five-acre tract of land valued at \$10,000 and located at the edge of the city was obtained. Rabbit and quail were later replaced by the expanding Negro residential community in the vicinity of the Benbow Drive (now Road) and East Washington Street (1400 block) intersection. A \$57,000 building permit was granted September 6, 1926, and contracts for construction were let on October 27 as follows: general contractor, Walter Kidde; heating, W. W. Dick; electricity, J. L. Griffin; and plumbing, Hower-ton and Benner. The first patient entered

the L. Richardson Memorial Hospital Building May 4, 1927. Equipment of the operating room and x-ray department was provided for by a donation of \$10,000 by Mrs. Emanuel Sternberger whose husband had taken an active interest in the building of the hospital prior to his death.

This, the second Greensboro Negro hospital, was formally dedicated May 27, 1927, with a baby show, track meet, and May Pole dance at World War Memorial Athletic Stadium. Dr. Rankin of the Duke Foundation and L. Richardson, Jr., made addresses, with Richardson making the presentations in behalf of his brother H. Smith Richardson who could not be present. With a debt of \$20,000 which was cut to \$8,750 in three years, the \$300,000 hospital of 60 beds and 4 bassinets opened as the best built and equipped hospital in Greensboro. Brick veneered on hollow tile and reinforced concrete, this was the only fire-proof hospital in Greensboro. By 1944, there were fire escapes, a fire alarm in front of the building, a fire extinguisher on each floor, a fire hydrant 50 feet away, and a fire station one mile away.

Early Years of Operation

Dr. C. W. Banner served as chairman of the Board of Directors (1927-46) and subsequently as honorary chairman. The first administration was under the direction of a medical director, Dr. S. P. Sebastian, and a director of nursing, Mrs. J. Reid. In 1927 a 36-month accredited nursing school was established. Following a probationary term of 6 months, came the freshman term of 6 months, the junior term of 12 months, and the senior term of 12 months. The now extinct Rosenwald Foundation, which was interested in Negro education, and the Duke Foundation each gave \$17,500 toward a home for nurses which was finished in 1930, the year the first five nurses graduated. One of these, Mrs. Lillie Forte Barber, was employed by the Guilford County Health Department until her death in June, 1968.

The financial crisis of 1951 prohibited upgrading to continue to meet State Board of Nursing Education requirements, and the nursing school closed with the last class

graduating in March, 1954. At that time A & T College in affiliation with the hospital started one of two state-supported schools of nursing in North Carolina for Negroes. More than 140 nurses have graduated from the hospital's school of nursing and are presently employed across our nation.

In January, 1929, the late Mrs. J. E. Delinger organized the Women's Auxiliary, its purpose being "to perform acts of kindness to patients and nurses by visiting, giving flowers and reading materials, and to supply needs that the Board of Directors could not supply." Daily devotions for nurses and teachers were held in the dining room and funds were raised by giving entertainments. By 1943 there were 55 active members and Mrs. B. W. Barnes was serving toward more than 20 years as president. Today there are still approximately 50 members, 40 being active in public relations and in service to patients.

The hospital charter was amended again in 1934, changing the name from Greensboro Negro Hospital Association, Incorporated, to L. Richardson Memorial Hospital, Incorporated, and amended again in 1948, establishing it as a non-profit corporation. The hospital is named in memory of Lunsford Richardson not only because his family made the largest single initial contribution, but perhaps more because of his personal interest in the Negro. Among other things he taught a Sunday School class in a Negro church for many years in what is now the Cumberland Redevelopment area of Greensboro.

Until the county health department was established in the 1940s, clinics were an important part of the hospital. The pediatric clinic held at 3:30 each Monday paid special attention to malnutrition and provided artificial sunbath therapy to which winter rickets responded well. At that time more than half the Negro women were delivered by midwives and had no prenatal nor post partum examinations. The prenatal clinic instructed women, especially in regard to diet. Mrs. Beda Carlson Calhoun was instrumental in organizing a tuberculosis clinic that was held twice weekly. During

six months 480 out-patients were given fluoroscopic examinations.

Following the accidental death of the medical director in 1939, Geneva Collins (Hunt), R. N., became the superintendent of both hospital and nurses. On July 1, 1948, C. Whitney Corbet of Arlington, Virginia became hospital business manager, allowing Mrs. Hunt full time to supervise nursing and medical programs. On September 14 of that year C. W. Angle, chairman of the Board of Directors, announced Mrs. Hunt's resignation, her 13 years of service to end November 1. Within a year from the time Corbet came to the hospital, he became the first administrator and served until the present administrator, Dr. J. Smith, took office on February 15, 1952.

Expansion

The hospital began swelling at the seams. There were 900 patients in 1935, 1,244 in 1944. In 1944 plans were made to expand to 84 beds plus 12 additional nurses' bedrooms. In April, 1945, construction began on the \$65,000 building that was to house \$15,000 worth of equipment, and the facilities were dedicated May 27, 1946. The new obstetrics department, with 12 beds and 17 bassinets, and the pediatrics department were among the best in the state. By 1948 there were more than 3,000 patients per year, and in 1951 a total of 3,683 patients accounted for 19,989 patient days. Including newborns there were 3,925 patients in 1952, and emergency treatment was given 1,945 of 2,601 patients seen in the emergency room.

Following a \$11,000 face-lifting and equipment purchase in the winter of 1952-1953, the hospital grew to 96 beds in 1954-1955 when the top floor of the nurses' quarters was converted to patient care and the bottom floor became occupied by staff, including 14 nurses. L. Richardson Preyer, chairman of the board, a descendant of Lunsford Richardson, and a prominent Greensboro businessman, had said this \$20,000 remodeling project, together with equipment on hand, would serve the purpose of a \$150,000 equipped building expansion in moving beds from the halls.

Steadily growing, the hospital experienced

its most active year to that time in 1955 when 5,325 patients spent 33,838 patient days, for an average of 92% bed occupancy. Administrator Smith stated four immediate needs as follows: (1) surgery suite space, recovery room, and an additional operating room; (2) relocation of the emergency room from the front entrance; (3) the addition of eight to ten beds; and (4) more office space. Also, the pediatrics department needed to relocate and expand. Smith said the cost could be met by a recent Ford Foundation grant of \$49,800 and by transferring during the current year \$20,000 to \$30,000 from the current operating account to the building account. Also included were local and Federal Hill-Burton funds. By 1957, 110 beds were available, including new emergency and recovery rooms.

Operational Complexities

From the start the hospital had been without endowment and supporting agencies, and few Negroes could pay the full cost of treatment, thus leaving a deficit. At a meeting December 1, 1925, the City Council said it would accept a deficit of not more than \$2,500 per year. Later that month the county commissioners agreed to appropriate \$1,200 per year to the Negro hospital; but, before any money came from the city or county, city officials found a law that prevented them from making donations to charitable causes and no money ever came from either source. In 1931 the Duke Foundation gave \$3,000 with the stipulation that the hospital raise \$4,000 from other sources, to which the L. Richardson family gave \$4,500.

On National Hospital Day, 1951, the hospital received \$2,000 from the Richardson family plus the first payment of its first endowment, an annual \$2,000 from the Richardson Foundation of New York if the Negro community would match it. That year operational loss amounted to \$2,000, but contributions, including \$7,000 from the Richardson family, totaled \$22,000. The next year the Auxiliary gave \$2,000 for steam carts. In 1953, operating costs were reduced and a financial campaign, the fourth such drive, raised \$13,000 for a special fund to be used for capital improvements. In the mid 1920s

the Duke Endowment began an annual contribution to hospitals in North Carolina and South Carolina of \$1 per day for bona fide welfare patients, those listed on the welfare department books, and through 1967 had given L. Richardson Hospital \$253,811 in this way. For each welfare patient day the North Carolina Medical Care Commission contributed \$1.50 until a few years ago when the gifts ceased, and the Kate B. Reynolds Foundation makes contributions based on the earnings of the trust. Welfare department reimbursement for bona fide welfare patients in 1966 was set by law at \$22 per diem. Yet a large and increasing operating deficit has been brought about by the charity patient, the one who is not on welfare and who does not pay in full.

Silver Jubilee Anniversary, the hospital's first celebration, came 12 months late, May 17, 1953. After receiving 42,000 patients, babies, and outpatients over the 26 years, the hospital announced in the celebration bulletin:

When this hospital opened, there were only six hospital beds in Greensboro and vicinity available to the Negroes of our community.

There is a great need for the recognition that this is a community hospital and not a privately endowed one. Few, if any, of the community's public institutions have given so much in service at so little cost to the community.

It collects the largest percentage of its bills of any Negro hospital in North Carolina. Its record for self-sufficiency is probably without parallel in the country. It depends more on income from patients and less on income from outside sources than any other Negro hospital in the State—and all of this at prevailing rates.

The active year of 1955 may be examined for some of the hospital intricacies. There were 627 major surgical operations, 889 minor operations, 881 babies delivered, and 22,971 x-ray procedures with 2,030 studies on patients. Trustees authorized the purchase of a station wagon for hospital business. Major equipment cost nearly \$50,000, and plant repair and alterations cost several thousand dollars. Charges to inpatients amounted to \$483,912.19, of which \$324,662.30 was collected and \$69,960.45 was stricken as noncollectible. Charges to welfare patients amounted to \$76,543.98 for which contribu-

tions amounted to \$72,727.43 from sources as follows:

Guilford County Welfare Department	\$37,283.92
North Carolina Welfare Department	
(plus Federal supplement)	8,639.37
Medical and Hospitalization Fund	
(a Red Feather agency)	17,274.44
Duke Endowment	6,196.00
Kate B. Reynolds Fund	3,433.70

In 1959 the hospital purchased an emergency generator with a diesel engine, the cost of \$10,000 being split equally between the hospital and the Federal Civil Defense Mobilization cost-sharing funds.

In April, 1962, plans for a \$2,260,000 improvement program were announced. The project was to include modernization of the existing structure and a four-story addition to increase the number of beds to 203 and the nursery to 30 units. The sum of \$750,000 was to be sought in a local campaign, the remainder coming from the L. Richardson Foundation and Hill-Burton funds. By September occupancy reached 99.9%. The local goal had been obtained so as to claim a \$350,000 challenge gift from the Richardson Foundation and a \$1,160,000 Hill-Burton federal grant; but the federal government indicated that an entirely new hospital would be preferable to addition of a wing and renovation of the existing building. Since the federal government would pay 55% of the cost of a new hospital but none of the renovation cost, a new hospital at the same location was decided upon. That same month they reached the \$1,125,000 goal required to lay claim to \$1,375,000 from Hill-Burton funds so that a new \$2,500,000 hospital might be built.

Relocation

In January, 1963, the trustees proposed building a new hospital on new land—21.5 acres at the south of Benbow Park—at a total cost of \$2,455,000. The site was purchased for approximately \$58,000 from Mr. and Mrs. J. Sam Johnson. Architect Adrian P. Stout of Greensboro drew the plans; contracts totaling \$2,254,580 were let May 8, 1964.

Following a building permit of \$2,254,580, the ground breaking ceremony was held on May 24, 1964. Whereas, the national norm

in hospital construction was \$25-\$26 per square foot, the new hospital cost only \$20.86 per square foot. Movable equipment cost an additional \$220,000.

The new L. Richardson Memorial Hospital at 2401 Southside Boulevard held open house for the medical profession on May 21, 1966, and for the general public on May 22. Moving day was set for June 13, and breakfast was served. First, babies were carried in baskets in a station wagon. When the television press conference was held at 12:30 P.M., all but one of the 90-odd patients had been moved in ambulances furnished by six local funeral homes. Because the new oxygen facilities were not ready, an infant with cardiac disease remained behind. The transition was smooth.

John Snow of Richardson Realty Company handled the sale of the site of the old hospital for \$105,000 to Carl Scheer Associates, who renovated the building for a 96-bed nursing home, Carolina Nursing Center, and later planned to develop the adjoining tract into 48-62 semi-luxury apartments units with a swimming pool.

Financial Problems

The new hospital was beset with financial difficulties from the start. Before seven months had passed, E. R. Zane, chairman of the Board of Directors, and L. Richardson Preyer went before the city council (December 15, 1966) and county commissioners (December 19, 1966) asking for \$75,000 to meet immediate operating deficits and for \$25,000 per month for an indefinite period.

The financial crisis was precipitated by the following factors:

- increased operating cost of the new facilities.
- no reserve funds from the move.
- increase in number of employees, and in individual salaries, especially those of nurses.
- inadequate census.

In reference to the last factor, Moses Cone and Wesley Long hospitals had waiting lists while L. Richardson hospital had 115 of the available 185 beds occupied. Also, many full-paying Negro patients who previously patronized L. Richardson moved their patron-

age to Moses Cone, leaving L. Richardson with 30% charity patients. Whereas, the predominantly white hospital had approximately 7% charity patients, the goal of L. Richardson was to reduce its 30% to 10%.

Before Christmas, 1966, a new predominantly Negro, 13-man committee, the L. Richardson Hospital Promotion Committee, under Chairman A. S. Webb, former Chairman of Greensboro Human Relations Commission, stated the following objectives:

1. To solicit and receive funds from Greensboro citizens.
2. To encourage "the total community" to make "maximum use" of the new hospital.
3. To investigate the hospital's services and to suggest improvements.

In February, 1967, the committee stopped fund raising and presented \$3,094.10 to the hospital.

In January, 1967, the Greensboro City Council turned down the plea for financial assistance by saying the city had relinquished its health and welfare functions to the county in the 1950s. On February 23, the Guilford County Commissioners said a reluctant "no" to the request for aid because the hospital served primarily Greensboro citizens, not the entire county—93% of the patients were from Greensboro—but the commissioners said they might go along with the city council if it were to take the initiative. Webb criticized both decisions, claiming government leaders were hiding behind statutes of the state on this occasion, although on another occasion they had asked state representatives to change the statutes so as to enable an increase in council and mayor stipends.

In March an \$18,000 capital improvements grant from Duke Foundation came as an addition to an original \$96,000. It was made because final construction costs exceeded expectations and did not mend operating deficits.

Under the leadership of Zane, the hospital renewed its plea for financial assistance. Councilman Mack Arnold, Jr., recommended a cash grant of \$40,000; but the idea of councilman Forrest Campbell, former county

attorney, that the city and county lend the hospital \$150,000 for five years interest free and to be repaid only from profits, gained acceptance. On March 20, city and county each yielded \$75,000 from non-property tax funds, and hospital trustees assured the two bodies they would not seek further funds. Fifty-thousand went for bank loans, \$70,000 went for past due bills, and the reserve fund caused local banks to be more friendly. None of the loan was spent for day-to-day operating expenses. Zane was determined to place the hospital on a sound financial footing; so Jacques Norman Associates, hospital consultants of Greenville, S. C., was employed in September, 1967, to review financial operations and medical procedures. Also, a full-time comptroller of the hospital was employed. A special grant of funds by members of the Richardson family was made to assist in meeting these added expenses.

Today L. Richardson Memorial Hospital is a modern medical center, located in southeast Greensboro, near the intersection of Highway 29 and Interstate 85. This location makes its emergency room most accessible to victims of highway accidents, but more important is its inconvenience for white physicians, most of whom live across town. Here is a hospital with 185 beds of which 152 are staffed and less than 120 are being occupied. Presently, larger than the other two predominantly Negro hospitals in the state, Durham's Lincoln with 125 beds and Winston-Salem's Kate Biting Reynolds with 168 beds, L. Richardson has two delivery rooms and four operating rooms but does not have the census to support a coronary, psychiatric, intensive care, social service, nor physical therapy department.

In its building design, L. Richardson Memorial Hospital has spread patient rooms, thereby limiting the problem of patient visitors facing many hospitals, and has not restricted visiting. Each of two halls on

each floor is lined on the exterior with one-, two-, and four-bed rooms, and on the interior by baths, showers, and storage rooms.

According to administrator Smith, the major problem at present is the lack of physician participation, due mainly to the distance white physicians have to drive to reach the hospital from the other side of town. The twelve Negro physicians and six Negro dentists alone cannot support the hospital.

Until 1953, essentially all Negroes were treated at L. Richardson Hospital; but the new Moses H. Cone Hospital decided to admit Negroes, carefully controlling the number so as not to affect L. Richardson "adversely." The first day Moses Cone opened its doors a Negro patient was transferred from L. Richardson; and subsequently, when needed treatment facilities were lacking at L. Richardson, others were transferred. Before the 1964 integration ruling, L. Richardson saw an occasional white patient. Today there are very few white patients; and, in addition, many Negroes are now entering the other hospitals because of their own choice, their physicians' preference, or both.

On the bright side, L. Richardson is good insurance for a community disaster; and, if Greensboro expands southward and more physicians move nearer the hospital, this long-time community effort may receive the nourishment it needs to flourish again.

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APRIL, 1969

THE SPRING SESSION OF THE MIDWINTER EXECUTIVE COUNCIL MEETING

It was the snow of March 1, not a taste
for paradox, that led to the title of this edi-
torial. President Welton, after looking at the
great length of the original agenda of the
midwinter council meeting, decided that
items on the end would get short shrift, so
he ordained a second session for March 2.
With members coming from all parts of the
state, and snow over almost all parts, the
meeting had to be postponed until March 23,
when the council spent the day in Raleigh.

Progress on the Headquarters Building
was reviewed, using preliminary floor plans

as a focal point. Since these plans seemed
practical and straightforward, the Head-
quarters Facility Committee was authorized
to go ahead with more detailed drawings,
including elevations, which should be ready
by the May meeting. Since the building
makes us neighbors of the governor, the
City Planning Board will have to review
them, and their comments should be ready
for May also. The Headquarters Facility
Committee will appoint an executive com-
mittee to keep the work going through the
vacation months.

The status of Title XIX came up for dis-
cussion several times. In general, all legis-
lative and other discussions to date indicate
the concept of "usual and customary"
charges has been accepted for this program.
Discussions with state agencies whose
health-related programs will continue as
now, even after Medicaid becomes effective
have not led to definite acceptance of this
principle, however. Although there is some
sentiment nationally to move back the fed-
eral deadline of 1970 for states to come up
with a Medicaid plan, North Carolina plans
are moving ahead about as expected. There
is also some sentiment in Congress to force
review of the former HEW Secretary Wil-
bur Cohen's decision not to ask for a Medi-
care premium increase, and this might be in-
troduced together with a call for the delay
in Medicaid implementation.

The long-range planning committee gave
an interim report, with their full report
scheduled to come at the May meeting. This
group feels that medicine as represented by
the State Society must be positive and ac-
tive, trite as that may sound. We must take
an active part in developing paramedical
programs; shoulder fully the responsibility
for patient care; see that the Society advises
the governor and state agencies on appoint-
ments to advisory groups; look into the mat-
ter of requiring evidence of postgraduate
education for continuance of a valid license;
oversee regional planning; and make sure
that various types of health facilities offer-
ing different levels of care (nursing homes,
minimal care wings, and so on) are included.

Reporting for the State Board of Medical
Examiners, Dr. Edmondson said there are

several matters needing attention which may, at some time, require revision of the Medical Practice Act. The fee which the Board is allowed to charge for their examination is now set at a maximum of \$50, but the FLEX examination, which the boards of the various states are considering adopting nationally, costs more than that and the limit will have to be set higher, probably at \$100. The Board is now required by the Act to give a two-part exam, but the FLEX exam is in three parts, given at one sitting, calling for another rewording. Now that biennial registration has been in force for a number of years, the amount of fines a person must pay to have his license reinstated after failing to register is mounting to a considerable sum. Since in some instances these people have never been notified that registration is a requirement, it would seem that a \$100 ceiling on accumulated fees and penalties is reasonable, and this is not provided in the Act. The Board would also like authority to reinstate revoked licenses on a conditional basis, rather than the complete restoration which is their only option now. In this way, for example, a physician whose license was revoked for drug addiction could be given a license only if he would practice in an institution where he could be observed for a while until full restoration would seem in order. In response to questions, Dr. Edmondson said that the Board felt no need any longer for authority to issue temporary licenses, since they have increased the number of their meetings.

Dr. Rhodes, discussing the activity of the Blue Cross-Blue Shield Study Committee (ad hoc), mentioned that after the January 1968 merger of the "Blue" plans in this state, the so-called "Doctor's plan" is being phased out, since broader coverage is becoming available, with the "usual and customary" charge plan being preserved. On a national level, all "Blue" plans have been asked to make available a full payment plan to subscribers, which obviously will cost more, making many subscribers still desirous of having a benefit type plan as in the past. Our group is working to make the full benefit plan as economical as possible, in an effort to minimize the problems of

subscribers. With the advent of this new policy the "Blue" organization is thinking of doing away with the present signed participation agreement with physicians; a majority of committee members presently favors this step. The Society committee will continue to act on grievances and peer review and to improve understanding by the profession of the practice and problems of the "Blue" plans.

One discussion that drew much interest concerned the Joint Commission on the Accreditation of Hospitals, which is the subject of a recent AMA resolution calling for more participation by physicians, working through their county and state societies to advise on the revision of the standards and to resolve grievances. Dr. John Glasson and Mr. Barnes have already begun action on this resolution, and the members will shortly hear more about their specific role. It is likely that a subcommittee of our present Hospital and Professional Relations Committee will handle this activity, at the state level. Since all of us are concerned with the activities of the JCAH, and many have had occasion to discuss it, the Council felt that this new interest on the part of the AMA was welcome and timely.

The physiotherapists of the state are attempting to have legislation passed which would license physiotherapists and their assistants, but would still require that they have a prescription from a physician to give treatment to a patient. Licensure would restrain untrained people from engaging in possibly harmful manipulations without a physician's direction. The Council supported the bill.

The Council also approved the furnishing by the Society of advice on a proposed act to establish minimum workroom standards for industrial employees, and to provide for inspection of working conditions to see that hazards are dealt with according to standards. At present there is a voluntary mechanism for such matters, and Federal legislation will soon impose standards on the state unless the state comes up with its own bill, making attention to these matters compulsory.

President's Page

A MESSAGE FROM YOUR AUXILIARY—THE YEAR IN REVIEW

It is with sincere gratitude and pride that our Auxiliary message occupies Dr. David Goe Welton's "President's Page"—gratitude for this honor you have accorded us, for your many kindnesses always, for your generous financial help, and for your continued interest in and cooperation with our programs. We are particularly grateful to Dave Welton for his special kindness and help to us this year. It has been my distinct privilege and sincere pleasure to serve my term of office simultaneously with that of Dr. Welton. His aura of effective leadership has afforded us guidance and opened new vistas of service for our Auxiliary. We all appreciate all that he has done to direct, to encourage, and to assist us.

We are, also, especially grateful to Mr. James T. Barnes, Mr. William N. Hilliard, and the entire headquarters staff. They have made us feel that no request was too small to be considered and that none was too large to be denied. For this and for their dedicated, able, and untiring work in behalf of this Society and its Auxiliary, we extend our heartfelt thanks.

To Dr. E. T. Beddingfield, Jr., President-elect (who because of his geographic proximity has been obliged to "listen" a great deal more than was convenient), to the other members of the Executive Council, to Dr. Roscoe D. McMillan, chairman, and other members of our Advisory Committee, and to each of you, the members of the Medical Society of the State of North Carolina, we would like to express our deep appreciation. The greatest honor of all is to serve as your Auxiliary. It is our hope that our efforts and the record of service that we have compiled in behalf of you individually and of organized medicine will make us worthy of the name of your Auxiliary and of the confidence you have placed in us.

Our Auxiliary year has been an exciting, enthusiastic, busy, and, we hope, effective one. It has been characterized by the involvement, the dedicated and comprehensive

efforts, and the real cooperation of each Auxiliary member. All the officers and committee chairmen on both the local and state levels as well as each individual Auxiliary member have worked together tirelessly and well, and words cannot express adequately my gratitude to each of them.

The Auxiliary theme for 1968-1969 is "Ambassadors for Health." The Auxiliary serves as a liaison group between the Society and the general public; we are emissaries of the medical profession. And so, we have used all of the wisdom, enthusiasm, and energy we could muster to be good "ambassadors," to be a vital and helpful part of medicine's diplomatic corps.

Since all ambassadors have portfolios, we have attempted to accomplish our objectives through a "Portfolio of Projects." These projects have been many and varied, stimulated by unmet needs in our communities and in our state. It is impossible, of course, to describe all of these in the brief span of this message, but I would like to summarize briefly a few of the most outstanding—the highlights of our efforts as we see them.

A large and concerted effort has been continued in the field of health careers recruitment, a concern that must be paramount in our efforts because of the acute shortage in all of the more than 200 health fields and because of the projected growth of the health industry. Extensive work has been done in the recruitment of new personnel through career days, sponsorship of and work with health careers and science clubs, work with guidance councilors, and interest and assistance in the summer work experience program for high school students. "Operation Recall," the re-enlistment and re-training of currently non-working health manpower, has centered in our efforts to recall the more than 700 unemployed RN's in North Carolina today. To this end, a list of the technical institutes and community colleges, the persons in charge of such programs at each institution, and a proposed outline for a gen-

eral duty nurse refresher course have been provided each Auxiliary.

The tragic toll of life and limb on our highways have prompted the beginning of a new safety—disaster preparedness project. This effort, the first of its kind in the nation, is a cooperative one. The Trauma Committee of the Medical Society, the Committee on Nursing and Patient Care, the Department of Motor Vehicles, the Hospital Association, North Carolina Blue Cross and Blue Shield, Inc., and the Auxiliary have joined together in a public educational project to urge all North Carolina drivers, the 2½ million persons (half of the population of the state), to carry emergency medical identification at all times. The Auxiliary is also attempting, through further public education, to encourage the other half of the population who does not drive to carry such identification.

The State Auxiliary, the North Carolina Mental Health Association, two local Auxiliaries and two local Mental Health Associations sponsored two suicide prevention workshops in the fall, with Dr. Robert L. Garrard, psychiatrist of Greensboro, and Dr. Edwin S. Schneidman, director of the Center for the Studies for Suicide Prevention at NIMH, as the workshop leaders. The purpose of these very successful workshops was to educate toward and to solicit public support for the establishment of crisis centers across our state. The Auxiliary helped with the Cherry Hospital symposium for physicians and their wives in the 33 county catchment area served by Cherry Hospital.

We will join with the Junior Leagues in North Carolina, Governor Robert W. Scott, the North Carolina Mental Health Association, the North Carolina Council of Child Psychiatrists, and the Governor's Commission on Juvenile Delinquency in their sponsorship of a forum on "The Emotionally Disturbed Child in North Carolina." The forum will attempt to point up the largely unmet needs of the more than 50,000 emotionally disturbed children in North Carolina.

Family Life Education courses in the public schools are desperately needed in many of the school systems in our state, and the state

Auxiliary cooperated with the Forsyth-Stokes Auxiliary in the sponsorship of two Family Life Education Workshops to which all fifth grade teachers in the state were invited. The response from the school personnel has been most rewarding.

On December 8, 1968, an historical "first" was achieved with the dedication of the Country Doctor Museum, in Bailey. This museum, long a dream of many and worked for and endorsed by you and your Auxiliary, is the only purely medical museum in the nation. It is a truly amazing repository dedicated to the commemoration of our forefathers in the medical profession and to the perpetuation of the family physician.

On March 6, 1969, the Auxiliary will observe its second "Day in the Legislature," which will be highlighted by a briefing by the Society Committee on Legislation, a visit to the General Assembly and our local legislators, a luncheon address by Representative Nancy (Mrs. John B.) Chase of Wayne County, and a tour and reception at the Executive Mansion.

These are only a few of the myriad duties, projects, and activities undertaken and accomplished by our Auxiliary "Ambassadors for Health." We now have 27 students on state Auxiliary student loans, four fully endowed sanatoria beds, and an evergrowing mental health research endowment fund; we send tons of drugs to overseas relief stations; we won a national award last June for our AMA-ERF activities; we won honorable mention by the Southern Medical Association for our work in preserving the history of the medical profession, and the list of service to others goes on and on.

Thank you again for this opportunity to tell you about your Auxiliary and for all you have done for and mean to us. Sir William Osler has said, "We are here to add what we can to, not get what we can from life." It is our sincere hope that this sentence describes our Auxiliary efforts.

Mrs. John L. McCain
President, Auxiliary to the
Medical Society of the State of
North Carolina—1968-1969

Committees & Organizations

NORTH CAROLINA STATE BOARD OF HEALTH

Supplemental Food Program

Since there has been so much interest in providing food to low income people, a supplemental food program is offered to our North Carolina counties. It is intended to provide food for women and children of risk because of their age or condition, complicated by low income.

The food is to meet health needs and shall be ordered by a physician or a professional co-worker whom he designates. Certification is determined by the patient's statement of family income as related to family size, eligibility of the family to receive other health services, and the physician's decision that additional food will improve the patient's health. This does not necessarily mean a diagnosis of "malnutrition," but rather that the physician recognizes that the patient would benefit from additional nourishing foods.

Foods may be ordered by kind and amount, according to five age groupings. Infants from birth through the third month may be given evaporated milk, corn syrup, fruit juice, and fortified farina. Infants from four months through one year are given the same foods, plus scrambled egg mix.

Children aged 13 months through two years are given evaporated milk, fortified farina, fruit juice, scrambled egg mix, canned meat, canned vegetable or fruit, instant potatoes, and dried milk. Children three years through five years are given all these foods, plus peanut butter.

Pregnant women, nursing, and postpartum mothers are given all the foods given to three to five year age group, plus chocolate milk beverage mix.

Since these foods are ordered as a prescription, certain foods can be reduced or deleted from the order. Maximum amounts which can be prescribed for each age group are set by the U. S. Department of Agriculture. Standards for eligibility are relatively simple and do not exclude individuals receiv-

ing other forms of financial or food assistance. This program is not intended to provide the only nourishment for "starving families," but is intended to provide supplemental nourishment for those living under physiologic stress; in other words, the stress of rapid growth.

Physicians having patients who could benefit from the supplemental foods should contact their county health director. The program has only recently been offered in North Carolina. With the encouragement of physicians it could be available throughout the state.

Arrhythmias Testing Unit Is Available for Meetings

A four panel table-top unit for physicians to test their ability in the diagnosis and treatment of arrhythmias, has been prepared by the American Heart Association's Committee on Medical Education.

Each of the panels illustrate a medical case, with x-rays and electrocardiograms correlated to the written case history. After studying these, and pertinent laboratory data illustrated on the panels, the physician answers multiple choice questions relative to each case.

The unit is intended for use at medical meetings, by students and house officers, and at hospital staff meetings. It may be obtained on a loan or purchase basis through local Heart Associations or the AHA National Office, 44 E. 23rd St., New York, N. Y. 10010.

FDA Approves New Drug Application for Sulfamylon

The U. S. Food and Drug Administration has approved a New Drug Application (NDA) covering Sulfamylon Cream, a drug that has dramatically reduced deaths in severely burned persons, and has thereby released it for marketing.

The approval came in a letter from the FDA to Dr. Theodore G. Klumpp, president of Winthrop Laboratories, a division of Sterling Drug Inc., the manufacturer.

Sulfamylon Cream (brand of mafenide) as acetate has been supplied for some time to the United States Government for the treatment of seriously burned members of the Armed Forces serving in Vietnam. It has also been used on many civilian patients hospitalized in major burn centers throughout the United States.

Major factors involving actions of drivers resulting in highway deaths and injuries include not having the right-of-way, driving off the roadway, and driving on the wrong side of the road. Almost one third of the drivers involved in fatal accidents in 1967 were under 25 years of age.

Monthly Perinatal Mortality Report

TOTAL DELIVERIES AND PERINATAL DEATHS BY COLOR FOR COUNTIES AND SELECTED CITIES
OF RESIDENCE, WITH RATES PER 1,000 DELIVERIES¹: NORTH CAROLINA,
JANUARY 1969 AND MOST RECENT 12-MONTH TOTALS

County	WHITE					NONWHITE					County	WHITE					NONWHITE								
	Perinatal Deaths		Total Deliveries	Perinatal Rate	Per 1,000 Deliveries	Perinatal Deaths		Total Deliveries	Perinatal Rate	Per 1,000 Deliveries		Perinatal Deaths		Total Deliveries	Perinatal Rate	Per 1,000 Deliveries									
	January 1969	February 1968 - January 1969				January 1969	February 1968 - January 1969					January 1969	February 1968 - January 1969												
NORTH CAROLINA	153	1919	56214	32.0	32.0	102	1422	28265	51.1	51.1															
ALAMANCE	6	45	1226	36.7	36.7	18	446	40.4	40.4	PENDER	1	5	140	35.7	5	150	37.3	37.3							
ALEXANDER	1	11	287	38.3	38.3	1	5	39	39	PERQUIMANS		1	67	-		56	-	-							
ALLEGHANY		3	112	-	-			3	3	PERSON		3	226	25.7		12	195	61.5							
ANSON		5	151	33.1	33.1	16	277	57.8	57.8	PITT	2	18	728	24.3	1	28	613	45.7							
ASHE	16	214	51.0	51.0	51.0	1	3	-	-	POLY		5	132	37.9	1	28	3	29	-						
AVERY		3	231	-	-			3	3	RANDOLPH	3	33	1191	27.7	1	4	142	-	-						
BEAUFORT	1	12	399	30.1	30.1	3	15	247	80.0	RICHMOND	1	20	485	41.0	2	18	284	63.4	63.4						
BERTIE		1	121	-	-		12	263	48.0	ROBERTSON		17	603	28.2	5	62	1463	42.4	42.4						
BLADEN	2	9	257	35.0	35.0	1	10	228	48.0	ROCKINGHAM	3	27	973	27.7	2	24	392	61.0	61.0						
BRUNSWICK	1	8	286	27.9	27.9	10	160	62.5	62.5	ROWAN	2	30	1157	26.8	1	15	332	46.0	46.0						
BUNCOMBE	6	77	2148	35.8	35.8	1	10	285	35.1	RUTHERFORD	1	28	712	39.3	2	11	148	74.3	74.3						
BURKE	2	25	987	25.3	25.3	1	5	80	80	SAMPSON		15	402	37.3	2	20	361	55.4	55.4						
CABARRUS	31	1079	28.7	28.7	28.7	15	296	50.7	50.7	SCOTLAND		8	210	38.1	10	242	41.3	41.3							
CALDWELL	4	39	1114	34.9	34.9	7	100	70	70	STANLY	3	24	611	39.3	1	10	179	55.9	55.9						
CAMDEN			49	-	-	3	38	-	-	STOKES	1	14	245	57.1	3	52	-	-							
CARTERET		8	492	26.2	26.2	1	5	94	94	SURRY	5	24	918	26.1	1	5	58	-	-						
CASWELL	1	8	148	5.4	5.4	9	184	48.9	48.9	SWAIN		2	96	-		1	52	-	-						
CATAWBA	40	1428	28.0	28.0	28.0	8	200	40.0	40.0	TRANSYLVANIA	1	10	332	30.1	3	22	-	-	-						
CHATHAM	7	331	51.7	51.7	51.7	4	189	-	-	TYRRELL		1	26	-		2	30	-	-						
CHEROKEE	8	289	57.7	57.7	57.7	16	-	-	-	UNION	30	766	42.6	1	17	353	34.0	34.0							
CHOWAN	1	90	-	-	-	1	5	97	97	VANCE	4	7	267	27.0	2	15	367	40.8	40.8						
CLAY	5	80	-	-	-			1	1	WAKE	4	70	2988	29.1	2	64	1191	53.7	53.7						
CLEVELAND	1	27	922	29.3	29.3	2	71	446	62.8	WADSWORTH		1	78	-	3	10	182	54.0	54.0						
COLUMBUS	11	537	20.3	20.3	20.3	14	331	42.0	42.0	WASHINGTON		3	136	-	2	6	162	37.0	37.0						
CRAVEN	1	29	1204	24.1	24.1	1	19	398	57.7	WATAUGA	2	14	347	41.7			6	-	-						
CUMBERLAND	12	114	3503	32.1	32.1	6	69	1297	17.4	WAYNE	1	24	1193	21.8	2	26	602	59.9	59.9						
CURRITUCK		52	-	-	-	5	37	-	-	WILKES	1	21	767	27.4		4	55	-	-						
DARE	3	117	-	-	-			6	6	WILSON		11	562	19.7	2	27	548	49.3	49.3						
DAVIDSON	1	40	1470	27.2	27.2	13	270	48.1	48.1	YADKIN	1	14	367	26.7		1	21	-	-						
DAVIE	12	289	47.6	47.6	47.6	2	5	67	67	YANCEY		1	204	-		1	2	-	-						
DUPLIN	1	9	387	23.2	23.2	2	15	327	46.0																
DURHAM	2	43	1468	29.3	29.3	2	35	894	38.1	CITIES	City totals are also included in county totals.														
EDGECOMBE	14	471	33.7	33.7	33.7	3	33	553	31.0	ALBEMARLE	1	7	177	46.7		1	50	-	-						
FORSYTH	11	70	1656	42.3	42.3	7	74	1129	68.6	ASHEVILLE	3	26	729	26.8		1	247	37.3	37.3						
FRANKLIN	4	176	-	-	-	1	16	758	61.0	BUCKINGHAM	1	18	526	34.1		6	131	43.8	43.8						
GASTON	9	74	2513	29.5	29.5	2	23	545	50.0	CHAPEL HILL		8	275	19.6		4	57	-	-						
GATES		3	36	-	-	4	101	-	-	CHARLOTTE	6	49	2114	21.5	2	25	1861	45.7	45.7						
GRAHAM		3	114	-	-			7	7	CONCORD		8	228	22.6		6	121	49.6	49.6						
GRANVILLE	2	11	228	48.2	48.2	1	32	262	33.4	DURHAM	2	22	952	22.1	1	20	765	39.0	39.0						
GREENE	1	84	-	-	-	2	6	160	68.2	ENSEN	1	2	253	-		1	4	67	-	-					
GUILFORD	16	133	3469	37.4	37.4	6	93	1616	37.8	ELIZABETH CITY		5	150	22.7		6	99	-	-						
HALIFAX	6	362	20.0	20.0	20.0	2	40	665	60.1	FAYETTEVILLE	5	26	1017	24.3	4	26	577	60.7	60.7						
HARNETT	1	16	595	26.9	26.9	14	255	38.4	38.4	GASTONIA	5	30	821	36.5		14	244	57.0	57.0						
HAYWOOD	1	26	716	36.3	36.3	2	23	-	-	GOLDSBORO	1	10	322	30.1	2	17	287	59.2	59.2						
HENDERSON	3	24	681	35.1	35.1	1	36	-	-	GREENSBORO	4	52	1658	21.0	4	62	965	54.9	54.9						
HERTFORD	6	133	40.1	40.1	40.1	4	71	271	37.6	GREENVILLE	2	7	314	22.8	1	7	176	40.0	40.0						
HOKE	5	114	42.8	42.8	42.8	13	222	58.6	58.6	HENDERSON		4	115	-	1	8	158	50.6	50.6						
HYDE		44	-	-	-	1	3	63	63	HICKORY		6	347	17.2		7	105	68.7	68.7						
IREDELL	2	29	938	30.9	30.9	1	22	317	69.4	HIGH POINT	4	30	782	28.4	2	30	454	66.1	66.1						
JACKSON	1	5	224	22.4	22.4	1	44	-	-	JACKSONVILLE		14	446	24.4		1	65	-	-						
JOHNSTON	1	27	735	36.7	36.7	13	331	38.3	38.3	KINSTON		2	261	-	1	19	211	85.3	85.3						
JONES	2	73	-	-	-	4	78	-	-	LENOIR		6	189	21.7		1	47	-	-						
LEE	1	9	420	21.4	21.4	9	152	69.0	69.0	LEVINGTON		3	258	-		5	75	-	-						
LENOIR	13	540	24.1	24.1	24.1	2	27	437	21.8	LUMBERTON		5	234	21.9		12	190	63.8	63.8						
LINCOLN	3	22	562	40.0	40.0	2	5	97	97	MONROE		7	152	48.7		5	104	48.1	48.1						
MCDOWELL	11	521	21.1	21.1	21.1	36	-	-	-	NEW BERN		4	171	-		9	179	69.8	69.8						
MACON	4	186	-	-	-	5	-	-	-	RALEIGH	3	38	1477	25.7	28	611	80.2	80.2							
MADISON	8	245	32.7	32.7	32.7	2	16	271	59.0	REIDSVILLE		6	141	45.6	3	96	-	-							
MARTIN	1	8	218	36.7	36.7	2	16	271	59.0	RANDOLPH RAPIDS		5	182	27.5		4	51	-	-						
MECKLENBURG	8	99	4696	21.1	21.1	2	91	2145	42.4	ROCKY MOUNT S		2	131	13.6	2	11	159	75.6	75.6						
MITCHELL	6	207	29.0	29.0	29.0	1	-	-	-	ROCKY MOUNT N		3	249	-	1	8	96	-	-						
MONTGOMERY	5	237	21.1	21.1	21.1	2	120	-	-	SALISBURY		8	239	33.6	1	9	125	70.0	70.0						
MOORE	2	12	518	21.2	21.2	3	23	422	21.8	SANFORD	1	7	194	26.1	2	71	-	-							
NASH	2	12	553	21.7	21.7	3	23	422	21.8	SHELBY		5	224	22.3		6	117	51.3	51.3						
NEW HANOVER	7	37	1071	34.6	34.6	1	13	412	21.8	STATESVILLE	1	6	247	24.7	1	9	122	66.0	66.0						
NORTHAMPTON		1	90	-	-	21	306	68.6	68.6	THOMASVILLE		7	214	32.7		5	120	41.7	41.7						
ONSLOW	4	49	2116	23.0	23.0	1	13	428	30.4	WILMINGTON	2	17	560	30.4	1	11	363	30.8	30.8						
ORANGE	24	793	20.3	20.3	20.3	11	241	45.6	45.6																
PAMLICO	1	80	-	-	-	1	57	-	-	WILSON		5	310	16.1	2	14	262	52.4	52.4						
PASQUOTANK	1	6	270	22.6	22.6	1	12	192	28.6	WINSTON SALEM	2	30	1377	21.8	7	70	1060	26.0	26.0						

Bulletin Board

COMING MEETINGS

Medical Society of the State of North Carolina, 115th Annual Session—Pinehurst, May 18-21.

North Carolina Heart Association, 20th Annual Meeting—White House Inn, Charlotte, May 29.

Roanoke Arthritis Seminar—Hotel Roanoke, Roanoke, Virginia, May 8-10.

American Academy of Orthopaedic Surgeons, Post-graduate Course on Trauma and Disease of the Upper Extremity—Atlanta, Georgia, May 15-17.

NEWS NOTES FROM THE UNIVERSITY OF NORTH CAROLINA SCHOOL OF MEDICINE

Dr. Frank Crane Wilson, Jr., associate professor of orthopaedic surgery at the University of North Carolina School of Medicine and the North Carolina Memorial Hospital, has been awarded an American Orthopaedic Association Exchange Fellowship.

The fellowship provides a visit of six weeks to leading orthopaedic centers in Great Britain.

Dr. Wilson, a native of Rome, Ga., came to the orthopaedic faculty of the University in 1964 after having served on the orthopaedic staff of the College of Physicians and Surgeons of Columbia University in New York City.

* * *

Dr. Erle Peacock has left the Department of Surgery in the University of North Carolina Medical School to become chairman of the Surgery Department at the University of Arizona.

Dr. Peacock, a native of Chapel Hill and a graduate of the University, received the M.D. degree at Harvard and has been a faculty member in the Department of Surgery since 1956. His specialty is plastic surgery and he founded the "Hand House" here for rehabilitation of damaged hands and fingers. He is author or co-author of 90 publications

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Dr. Mark A. Hayes of Yale University Medical School, a specialist in breast surgery, delivered a lecture sponsored by the Department of Surgery in the University of North Carolina recently.

* * *

The appointment of William T. Herzog as the University of North Carolina's first director of continuing education in health sciences has been announced by Dr. Arden Miller, UNC's vice chancellor for health sciences.

Herzog is now assistant professor of Health Administration for the School of Public Health.

As continuing education director in health sciences, Herzog will be responsible for coordinating, expanding, and evaluating all health science programs in continuing education.

* * *

The University of North Carolina was able to respond rapidly to a medical emergency because it had

medical specialists, an airplane, and an airfield immediately available.

On February 3, 1969, an 18-year-old resident of Beaufort, N. C. was injured in an automobile accident. This young man had "Christmas disease" a form of hemophilia.

Dr. Thad Jones, a pathologist at the North Carolina Memorial Hospital Clinical Coagulation Laboratory, was notified that the patient would be brought to Chapel Hill.

Dr. Jones treated the patient with special concentrates so that surgeons could perform the necessary operation. The basic bleeding problem was controlled. Unfortunately the physical injuries were so severe that the patient expired.

* * *

More than 20 University of North Carolina faculty and graduate students participated in the week-long Southeastern Psychological Association Convention held recently in New Orleans.

A seminar for dental hygiene clinical instructors will be held at the University of North Carolina School of Dentistry June 14-15.

The seminar, "Evaluation Methods for Clinical Dental Hygiene," is sponsored by the Dental Auxiliary Teacher Education Program.

* * *

Two seminars designed to aid hospital administrators and other professionals in improving hospital pharmacy operations were held in Durham and Charlotte during March.

The seminar, "Forces Affecting the Hospital Administrator in Dealing with Drug Distribution Problems," was attended by representatives of North Carolina, South Carolina, and Virginia hospitals.

* * *

Two population officials spoke recently at the University of North Carolina in Chapel Hill at a luncheon sponsored by the Carolina Population Center.

Emerson Foote of New York City discussed "Public Attitudes and Population Programs" and Douglas Ensminger of New Delhi, India discussed "Population and Development in India."

Foote is now chairman of the Campaign to Check the Population Explosion, New York. Ensminger has represented the Ford Foundation in India for 17 years.

* * *

The chief immunologist at Oak Ridge Associated University Medical Division presented a Sigma Xi lecture on the University of North Carolina here in February.

Dr. Nazareth Gengozian discussed "Immunological Studies in the Marmoset" at the program, sponsored by the UNC Chapter of Sigma Xi, national science honorary.

Marmosets are small South American monkeys now being used in immunological research relating to organ transplant operations.

* * *

What does a four-county semi-rural area do to improve its medical care system? According to Alexander,

Caldwell, Burke and McDowell counties, the best solution is to combine forces and create a regional health complex.

There are two reasons for establishing a regional health complex. First, there is a shortage of funds in the Appalachian counties, and, secondly, there has been a steady decline in the number of practicing physicians.

The programs, services, and facilities established in the area are seven hospitals, totaling 543 acute short-term beds; four nursing homes; a state psychiatric institution, Broughton State Mental Hospital; the Western Carolina Center for mentally retarded children; the North Carolina School for the Deaf; an otolaryngology clinic; a sheltered workshop for handicapped persons; a vocational rehabilitation center; welfare departments and public health departments; Western Piedmont Community College; Caldwell Technical Institute; Grace Hospital, and Lenoir-Rhyne School of Nursing; a pathology service; and a radiology service. Most of these have an obvious role in health care.

New component parts planned for the health complex include, among others, a satellite youth camp in the summer for the mentally retarded; a neurological and neurosurgical program; a comprehensive health services library; a comprehensive community mental health clinic; new or improved hospital facilities for each of the four counties; and a comprehensive home care program.

* * *

Changes in the American system of educating doctors to shorten by two to three years the time a physician is ready to care for his own patients was advocated in Chicago recently by the president of the Student American Medical Association, C. Clement Lucas, a senior in the University of North Carolina School of Medicine. Some 200 students from 94 medical schools in the United States joined physicians of the American Medical Association and other organizations in a series of conferences.

Lucas, whose home is in Lucama, N. C. said, "I was in England for the past two summers, and I saw persons who had completed their medical training in six years total and who were comparable to any medical student or physician in this country."

Lucas has stated that he proposes adequate medical care for all Americans regardless of the ability to pay, but that he does not suggest adoption of the British system of socialized medicine.

* * *

The Department of Health, Education and Welfare has granted the University of North Carolina \$257,000 to make plans for bringing better health services to the people of the state and the southeastern region.

Dr. William S. Flash of the School of Public Health said the five-year project "focuses on developing technologies for improving the availability and coordination of health services through comprehensive health planning at every level of provision, urban and rural."

* * *

A research chief from the National Institutes of

Health presented the third Venable Lecture in Chemistry at the University of North Carolina here in February.

Dr. Christian B. Anfinsen discussed "Biochemical and Synthetic Studies on Staphylococcal Nuclease." Dr. Anfinsen is chief, Laboratory of Chemical Biology, National Institute of Arthritis and Metabolic Diseases, Bethesda, Md.

* * *

The \$5 million Science Development Program at the University of North Carolina in Chapel Hill was inspected recently by a team of 12 representing the National Science Foundation and the National Science Board. The team examined the progress of the program.

The program is concentrated in nine areas in Chapel Hill—political science, sociology and psychometrics, mathematical statistics, information and computer sciences, chemistry, physics, and economics. The Institute for Research in Social Science is included also.

* * *

Clarence F. Cauble, former administrator of the Medical College of Virginia's A.D. Williams Memorial Clinic, has been appointed assistant director of the University of North Carolina Memorial Hospital in Chapel Hill.

* * *

Twenty-four mental health officials from seven states attended a "Mental Health Center Operations" course held at the School of Medicine here in March.

Mental health officials from North Carolina, Alabama, Florida, Georgia, South Carolina, Tennessee, West Virginia, and Washington, D. C. enrolled in the course.

* * *

A record-breaking number of entries have been received for the Seventh Annual Art Exhibition sponsored by the UNC School of Public Health.

Entries included paintings, drawings, and sculpture. The show opened March 16 and will continue until Dec. 1.

* * *

The University of North Carolina School of Pharmacy sponsored a symposium on "Pharmaceutical Aspects of Drug Therapy" in Winston-Salem and Greenville during March and April.

The Winston-Salem symposium began March 6 at the North Carolina Baptist Hospital with weekly meetings continuing through April 3. Greenville meetings began March 12 at Pitt County Memorial Hospital and continued through April 9.

* * *

A \$257,000 grant to train health planners has been awarded to the University of North Carolina in Chapel Hill by the U. S. Department of Health, Education and Welfare.

This grant will cover the first of five project years. It will total \$1.4 million during the next five years and is one of the largest HEW grants awarded for training health planners.

NEWS NOTES FROM THE BOWMAN GRAY SCHOOL OF MEDICINE OF WAKE FOREST UNIVERSITY

Dr. Eben Alexander, Jr., professor of neurosurgery at the Bowman Gray School of Medicine, has been elected to a two-year term as chairman of the editorial board of the *Journal of Neurosurgery*.

The journal is the official publication of the Harvey Cushing Society. Dr. Alexander is a past president of that society.

* * *

The U. S. National Committee of the International Union of Family Organizations has nominated Dr. David R. Mace, professor of family sociology at the Bowman Gray School of Medicine, as the next president of that organization.

The election will take place at the union's general assembly in July, with the new president to serve a four-year term. The International Union of Family Organizations, a consultative body of the United Nations, has its headquarters in Paris, France.

* * *

Work has begun on the construction of a 16-story addition to North Carolina Baptist Hospital. The new hospital and clinics building is scheduled for completion in three years.

Contracts for the \$13,651,100 project were signed in February by Reid T. Holmes, president of the Hospital, and Marion Stoker, vice president of Robert E. McKee, Inc., an Atlanta-based construction firm which earlier had submitted the low bid on the project.

The 367,000-square-foot building, largest component of the medical center's \$30-million expansion program, will increase the hospital's bed capacity from 477 to 695 and will double the space for clinics.

* * *

Dr. Thomas B. Clarkson, Jr., professor and director of the Department of Laboratory Animal Medicine, has been elected chairman of the Institute of Laboratory Animal Resources, a subdivision of the National Academy of Sciences-National Research Council. He will begin his three-year term in July.

Dr. Clarkson is a past president of the American College of Laboratory Animal Medicine.

* * *

Nine students and one faculty member at the Bowman Gray School of Medicine were inducted Feb. 25 as new members of the North Carolina Beta Chapter, Alpha Omega Alpha.

Senior students tapped for membership were Robert A. Buchanan, Jr. of Greensboro; Charles E. King, Jr. of Seabrook, N. J.; James A. McAlister, Jr. of Boiling Springs; Durward B. Pridgen of Aiken, S. C.; Martin Resnick of Rockville Center, N. Y.; and Kyle A. Young of Roxboro.

Elected from the junior class were S. Charles Bean of Maywood, N. J.; Jimmy C. Harris of Valdese and Monty Woods of Cuyahoga Falls, Ohio. Dr. Richard B. Patterson, associate professor of pediatrics, was elected as an alumni member from the medical school.

"Unmarried Mothers," a book written by Dr. Clark E. Vincent and published in 1961 by The Free Press, recently was released in paperback form for the first time. Dr. Vincent is professor of sociology and director of the Behavioral Sciences Center at the Bowman Gray School of Medicine.

* * *

Dr. Edwin H. Martinat, associate professor of orthopedics and physical medicine-rehabilitation, was presented a plaque March 12 by Governor Robert W. Scott, honoring him as "Physician of the Year" for the Governor's Committee for Employment of the Handicapped. He was selected for the honor by the executive committee of the Medical Society of the State of North Carolina.

* * *

Two members of the Bowman Gray faculty participated in the 21st annual meeting of the Southern Neurosurgical Society in Dallas, Texas. Dr. Courtland H. Davis, Jr., professor of neurosurgery, was chairman of the program committee for the meeting and presided at one of the sessions. Dr. David L. Kelly, Jr., assistant professor of neurosurgery, spoke on "Results of Operation and Immediate Postoperative Complications" during a panel discussion of "Percutaneous Cordotomy."

* * *

Dr. Frank C. Greiss, Jr., associate professor of obstetrics and gynecology, recently presented a paper on "Stage 1A Carcinoma of the Cervix" at the South Atlantic Obstetrics and Gynecology Conference in Hot Springs, Va.

* * *

Dr. David R. Mace, professor of family sociology, presented three lectures during his return trip from the Fiji Islands, where he and Mrs. Mace conducted a five-week seminar in sex and family life education for selected leaders from islands of the South Pacific.

He presented a public lecture on "Family Life in the Pacific—Needs and Prospects" in Pago-Pago, American Samoa; lectured to the Evangelical Council of French Polynesia in Papeete, Tahiti; and addressed a special group of interested persons in Mexico City, Mexico.

He also participated in a series of conferences in Mexico City, concerning the establishment of marriage counseling services in Mexico and the planning for the development of family life programs throughout Latin America.

* * *

Dr. I. Meschan, professor and chairman of the Department of Radiology, was visiting lecturer in radiology recently at the University of Kentucky Medical Center, Lexington, Ky. He spoke on "Systemic Manifestations of Rheumatoid Arthritis from a Radiological Viewpoint" and "Renal Physiology as Investigated with Radioisotopic Split Function Studies." Dr. Meschan also was the speaker for a meeting of the Bluegrass Radiological Society. His topic was "Correlated Pathology of Collagen Diseases."

* * *

Dr. R. Winston Roberts, professor of ophthalmology,

presented two papers at the Cataract Surgical Conference Feb. 8-12 in Miami Beach, Fla. He spoke on "Effect of Cataract Operation on the Course of Glaucoma" and "Cataract Operations after Filtering Surgery."

* * *

Albert McNeil, Jr., a senior medical student at the Bowman Gray School of Medicine, is spending his three-month, senior-year elective quarter in London, England, where he is taking special clinical training in obstetrics and gynecology.

He is the second Bowman Gray student to train at London's Obstetric Hospital. His training is directed by Prof. Denys V. I. Fairweather, director of the Department of Obstetrics and Gynecology at University College Hospital Medical School, University of London.

James A. McAlister, Jr., a senior student from Boiling Springs, spent his elective quarter at Obstetric Hospital last fall.

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Dr. James F. Toole, professor and chairman of the Department of Neurology, participated in Watts Hospital's 26th annual Medical and Surgical Symposium Feb. 21 in Durham. He presented a paper on "Diagnosis and Management of Cerebrovascular Insufficiency."

* * *

Dr. Clark E. Vincent, professor of sociology, gave a major address at Michigan State University's Colloquy on "Sexuality: A Search for Perspective" in East Lansing, Mich. He also lectured at the fifth annual Southeastern Regional Council meeting of Planned Parenthood-World Population held in Jacksonville, Fla.

NEWS NOTES FROM THE DUKE UNIVERSITY MEDICAL CENTER

Dr. Barnes Woodhall, special assistant to the president of Duke University, became a charter member of the select Society of Scholars of Johns Hopkins University in special induction ceremonies held recently.

The society's 16 charter members were chosen by faculty committees at Johns Hopkins. The members were introduced by Johns Hopkins President Lincoln Gordon at Commemoration Day ceremonies marking the founding of the university.

The Society of Scholars, which was established by resolution of the Johns Hopkins Board of Trustees, honors "distinguished, former postdoctoral fellows of the university who have gained marked distinction in their fields of scholarly or professional interest."

* * *

The chief of urology from six of the nation's schools of medicine composed part of the faculty at an "Invitational Assembly for Advanced Urology" held at Duke Medical Center March 6-7.

Host for the meetings was Dr. James F. Glenn, chief of urology at Duke, who also will be one of the lec-

turers. The assembly was sponsored by Duke's division of urology.

Members of the guest faculty were Dr. William H. Boyce, chief of urology at Bowman Gray School of Medicine in Winston-Salem; Dr. Willard E. Goodwin, chief of urology at the University of California in Los Angeles; Dr. John J. Murphy, director of urology at the University of Pennsylvania; Dr. George R. Prout Jr., chief of urology at the Medical College of Virginia; and Dr. Robert K. Rhamy, chairman of urology at Vanderbilt University.

Urinary diversion, neurogenic problems, and cancer of the prostate, cancer of the bladder, and kidney transplantation were among the topics included in the two-day postdoctorate assembly.

* * *

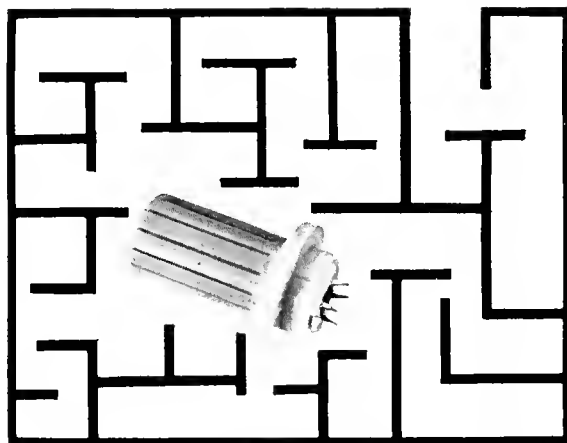
A Duke University Medical Center technologist was installed as president of the North Carolina Society of Radiologic Technologists at the group's annual meeting held March 15-16 in Greenville.

The new president is Eric Porter of Hillsborough, assistant chief radiologic technologist in the department of radiology. He is a graduate of the Duke School of Radiologic Technology and has been on the staff since his graduation.

Seven students from the school participated in the scientific sections of the society meeting.

* * *

What might be called a new "clinic" has opened at



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the Duke Medical Center, although the staff has been around doing its work for years.

The new facility—a clinic for the spirit instead of the body—is the Allen Memorial Chapel, an interfaith center of worship just off a heavily traveled corridor adjacent to the main lobby of Duke Hospital.

The chapel, a dream of Chaplain Wesley Aitken since he came to Duke as the hospital's first fulltime chaplain in 1956, was named for the late George Garland Allen, a chairman of the Duke Endowment Trustees.

A family room and an office for the hospital hostesses will be built adjacent to the chapel. In Baker House, elsewhere in the medical center, are the offices of Chaplain Aitken, two assistant chaplains and classroom space for the chaplain's training program, which currently has six students.

Prayers are offered in the new chapel every week day at 9 a.m. and 8:45 p.m. On Sunday two services are conducted and anyone may attend. One service is in the Christian tradition at 9 a.m. and one in the Jewish tradition at 1:45 p.m.

Holy communion is administered on Monday at 8 a.m. and on Wednesday and Friday at noon. Catholic mass is celebrated on Tuesday and Thursday at 12:40 p.m.

* * *

An end to the "schizophrenic nurse syndrome" is the goal of an experiment in patient care and ward administration at Duke University Medical Center.

The new plan, to be instituted on Duke's Nott ward within a few weeks, eliminates the necessity for having a registered professional nurse split her attentions between administrative responsibilities and the needs of her patients. Administrative activity on the ward now will be coordinated by a ward manager working in cooperation with the nurse.

Aimed to provide more opportunities for the professional nurse to use her special education and talents in assisting patients, the innovation also is being organized to attempt to decrease the problem related to the P. N. shortage plaguing Duke and many other hospitals throughout the country.

The R.N.'s will assess patient needs by utilizing nursing histories and creating effective nursing care plans. Advanced licensed practical nurses, L.P.N.'s and patient care aides will assist in providing the basic patient care needs as determined by the professional nurses. The professional nurse will give direct care to those patients who will benefit most from her knowledge and preparation.

In her clinical role, the registered nurse on the experimental ward will participate in the active care of a group of 15 or 16 patients with the other ward staff members. She will have no structured hours but will work with her patients as their needs for her professional competencies dictate.

* * *

Adolescents who have elevated blood pressures and a tendency to gain weight will carry their high blood pressure into adulthood unless treated early, according to Dr. Siegfried Heyden, associate professor of com-

munity health sciences at the Duke Medical Center. Dr. Heyden emphasized the clinical significance of elevated blood pressures in young people in a paper presented at a section meeting of the American Heart Association held in New Orleans recently.

Where weight is a problem, he said, "we would recommend a strict weight-reduction regimen as well as anti-hypertensive therapy after thorough diagnostic work-up."

Heyden and Drs. Alan Bartel and Curtis Hames of the Evans County Heart Research project in Claxton, Ga., based their conclusions on findings in a follow-up of a survey of teenagers and young adults made in Evans County in 1960 and 1961.

EAST CAROLINA SUICIDE SEMINAR

The problem of suicide will come under hard scrutiny at East Carolina University next month, thanks to a grant of \$8,738 from the National Institute of Mental Health.

The grant, approved for a proposal submitted by Dean Edwin W. Monroe of the ECU School of Allied Health Professions, will help finance a five-state regional seminar on planning community psychiatric emergency service. Major focus of the seminar will be on suicide prevention.

Co-sponsoring agencies for the seminar are the N. C. Department of Mental Health, the ECU School of Allied Health Professions, the Mental Health Training Institute of Eastern North Carolina and Region III of the Health Services and Mental Health Administration, National Institute of Mental Health.

Other participating agencies include the Departments of Mental Health in Virginia, West Virginia, Kentucky and Maryland, and state mental health groups in North Carolina and the other four states.

Dr. Monroe, in his proposal for the seminar, cited a need for development of comprehensive community mental health centers "which should include as an essential element of service 24-hour emergency treatment services." He said many communities throughout the nation are at work on such centers. This includes the development of suicide prevention centers offering 24-hour service and trained crisis workers to respond to a "cry for help."

Purpose of the seminar, he said, "is to encourage collaborative efforts by those groups or agencies concerned with the planning and operation of suicide prevention programs and comprehensive community mental health centers with each of the five state of our region."

Dr. Calvin Frederick, Assistant Chief of the Center for Studies on Suicide Prevention, National Institute of Mental Health, is scheduled as the main speaker at the seminar. Additional speakers include Dr. John Altrocchi, Department of Psychiatry, Duke University Medical Center; Dr. J. Wilbert Edgetron, Department of Psychiatry, University of North Carolina at Chapel Hill; and Dr. Nahum Spinner, Assistant Professor of Psychiatry, The Johns Hopkins School of Medicine, Baltimore, Maryland.

AMERICAN COLLEGE OF RADIOLOGY

Corbett E. Howard, M.D., of Goldsboro, John A. Goree, M.D., of Durham, Ignacio Bird, M.D., of Greensboro, Albert M. Jenkins, Jr., M.D., of Raleigh, and Damon D. Blake, M.D. of Winston-Salem were among 119 radiologists who were made fellows of the American College of Radiology at the annual meeting of the College held in Atlanta recently.

The degree of fellow is conferred upon certified radiologists who have given distinguished service to their specialty over the years.

Dr. Howard is now a member of the staff of Wayne Memorial Hospital and Cherry Hospital in Goldsboro; Dr. Goree is a member of the staff at Duke University Medical Center, Durham; Dr. Bird is a member of the staff at Wesley Long Community Hospital and Moses M. Cone Hospital in Greensboro; Dr. Jenkins is a member of the staff at Wake County Memorial Hospital in Raleigh; and Dr. Blake is a member of the staff of North Carolina Baptist Hospital in Winston-Salem.

INTERNATIONAL HEALTH ADVISORY COUNCIL

The formation of an International Health Advisory Council, under the sponsorship of Booz, Allen & Hamilton, international management consultants, has been announced by Dr. Lowell T. Coggeshall who will serve as its chairman. Membership of the Council will be

comprised of outstanding leaders from the various fields involved in providing health and medical services to the public. Dr. Coggeshall is the retired vice president and former dean of the Division of the Biological Sciences at the University of Chicago.

The purpose of the Council will be to review major developments in the health and medical services fields and advise on directions in which these fields are moving and the requirements that should be anticipated for the future. It will help identify the most significant current health and medical problems and provide guidance for anticipating future needs in these areas. Particular attention will be given to future management considerations facing organizations and institutions concerned with health and medical services.

Among those named to the Council, in addition to Dr. Coggeshall, is Ray E. Brown, executive vice president of Affiliated Hospitals Center, Boston, and professor of administration, Harvard Medical School.

A native of North Carolina and a graduate of the University of North Carolina at Chapel Hill, Mr. Brown received a master's of business administration degree from the University of Chicago in 1943. He twice returned to North Carolina—to serve as professor of medical economics at Bowman Gray School of Medicine, 1943-1945, and to become director of the graduate program of hospital administration and professor of administration at Duke University in 1964.

In his present capacity as executive vice president of the Affiliated Hospitals Center, Mr. Brown works

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closely with three Boston hospitals, each affiliated with Harvard Medical School.

He is a past president of the American Hospital Association and the American College of Hospital Administrators, and has just completed his term as president of the Association of University Programs in Hospital Administration. He is the author of "Judgment in Administration," published by McGraw-Hill in 1966.

SEALED FOR A CENTURY

The cornerstone of the old College of Physicians and Surgeons was opened recently in Wilmington, where it had been sealed since December, 1871.

The old structure had been removed to make way for an office building which is being constructed by the Waccamaw Bank and Trust Company. In January the bank arranged a cornerstone-opening ceremony and invited interested persons to attend.

Among those on hand were members of the Lower Cape Fear Historical Society with a list of items expected to be found, a list made at the time the stone was laid. A number of unlisted items also turned up when the stone was opened, giving a good picture of what was important in Wilmington nearly one hundred years ago.

Local historian Mrs. Ida Kellum removed and identified the contents:

A copy of Turner's 1871 North Carolina Almanac.

A list of officers and members of the St. John's Masonic Lodge, who assisted in laying the cornerstone, displaying the graceful calligraphy of a master penman.

Copies of the Wilmington Morning Star, Wilmington Post, and Wilmington Journal, all in excellent condition.

Copies of the Constitution, bylaws, a list of members of the College of Physicians and Surgeons, a copy of college president Dr. Francis King's inaugural address, and the college seal.

Copy of the Constitution of the Wilmington Typographical Union (an unexplained link with the college).

A packet of old coins, some in mint condition, some English, the oldest bearing a likeness of King George III and dated 1795.

Names of the state, city and county officers, and of local churches and ministers. City ordinances and charter with a city map.

Officers and members of the Chamber of Commerce.

A small Bible dated 1868.

The group was told that the artifacts would be placed in a special display area in the new bank, and would be later turned over to the appropriate historical group.

—From The State, February 15, 1969.

NORTH CAROLINA HEART ASSOCIATION

Dr. James A. McFarland, project director of the Cardiopulmonary Resuscitation Project of the North Carolina Heart Association and the Regional Medical Program, announced that 108 hospitals have indicated

an interest in participating in the CPR Project. Thirteen hospitals have been invited to participate in the first phase of the program.

Under the first phase of the program, hospitals are providing a physician who will attend a CPR Training Course which will be held at the Charlotte Memorial Hospital. These physicians will act as the CPR coordinator in their respective hospitals and will receive standardized instruction in the techniques of CPR.

Those hospitals indicating an interest in attending this first training program are: Roanoke-Chowan Hospital, Ahoskie; Stanly County Hospital, Albermarle; Margaret R. Pardee Hospital, Hendersonville; Lenoir Memorial Hospital, Inc., Kinston; Lowrance Hospital, Inc., Mooresville; Grace Hospital, Inc., Morganton; Maria Parham Hospital, Henderson; Davie County Hospital, Mocksville; Granville Hospital, Oxford; District Memorial Hospital of S. W. North Carolina, Andrews; Pender Memorial Hospital, Burgaw; Washington County Hospital, Plymouth; and St. Luke's Hospital, Tryon.

NATIONAL EASTER SEAL SOCIETY FOR CRIPPLED CHILDREN AND ADULTS

The 1969 convention of the National Easter Seal Society for Crippled Children and Adults will be held November 19-22 in Columbus, Ohio. The Sheraton-Columbus will be the headquarters hotel.

The Ohio Society for Crippled Children and Adults will be the host group for the annual meeting.

This convention will be in celebration of 50 years of organized service to the handicapped, which began with the formation of the Ohio Society in April of 1919.

N. C. STATE BOARD OF HEALTH

The North Carolina State Board of Health, in its recently released report of vital statistics for the year 1968, indicated that there were 23,617 deaths attributable to cardiovascular-renal diseases.

Overall deaths reported in the Tar Heel State for 1968 were 44,396. This points up that out of all deaths in North Carolina for the year 1968, 53.2% were the direct result of cardiovascular-renal diseases.

According to the State Board of Health report, of the 23,617 deaths attributed to heart and kidney diseases, heart disease was responsible for 15,768; stroke accounted for 5,747; atherosclerosis 639; nephritis and nephrosis 257; and other cardiovascular-renal diseases 1,206.

The North Carolina Heart Association notes that while the total number of deaths from heart disease is still holding at about the same percentage of total deaths as in the past five years, the figure of 53.2% is still indicative of the epidemic proportions of heart disease in our state. The Heart Association feels that only through continued and increased efforts in the area of research, professional and public education, and community service can a significant reduction of this figure be obtained in the next decade.

The Month in Washington

The American Medical Association told Congress that the Internal Revenue Service acted arbitrarily and completely ignored the facts in imposing a tax on revenue from drug advertising in journals of tax-exempt medical associations.

Bernard D. Hirsh, AMA general counsel, testified before the House Ways and Means Committee that the relation between the tax-exempt purposes of a medical association, national or state, and the drug advertising in its journal is self-evident.

"Drug advertising alerts and stimulates the physician's interest in new drugs as they become available, and also serves to remind him of the broad spectrum of useful time-proven drugs," Hirsh said.

"No other advertising provides as much complete and objective information."

Hirsh said the IRS regulations taxing medical associations on their advertising revenues represents an attempt to change the law without congressional action. The IRS officials made a mistake, he said.

Spokesmen for numerous other tax-exempt associations joined the AMA in opposing the tax on their advertising revenues. These included the American College of Physicians, the American College of Obstetricians and Gynecologists, the American Psychiatric Association, the American Dental Association, the Boy Scouts of America, the Girl Scouts of America, the American Chemical Society, and the Society of National Association Publications.

Representatives of commercial publishing firms contended in testimony before the committee that the previous tax exemption gave the journals of the associations an unfair advantage in competition for advertising dollars. When the IRS announced the new tax regulations 15 months ago, it stated that the purpose of the regulations was not to raise federal revenue but to remove a competitive advantage of the tax-exempt associations.

In an announcement not directly connected with the House committee hearings, the IRS said it also is considering taxing the income

tax-exempt associations get from rental of exhibit and display space at conventions.

* * *

A special advisory committee urged an extensive national program to combat alcoholism.

The National Advisory Committee on Alcoholism said in an interim report that attention should be given to alcoholism problems in all federally supported health and welfare programs. The committee also recommended:

Elimination by hospitals of discriminatory policies denying admission to alcoholic patients; health insurance coverage for alcoholics; increased support for research; prevention and control of alcoholism as a vital part of national highway safety programs.

The advisory committee provides advice and guidance to the Secretary of Health, Education and Welfare concerning the department's activities related to alcoholism. Robert Strauss, Ph.D., professor of medical sociology at the University of Kentucky Medical School, is chairman.

* * *

The National Institute of Mental Health awarded a first-year grant of \$250,000 for a major alcoholism research program at the State University of New York, Downstate Medical Center, New York, N. Y.

The five-year program will include experimental and clinical studies, training, and drug trials. In one study, 60 newly admitted patients between the ages of 25 and 55 with at least a five-year history of alcoholism will be studied to determine the effects of experimentally induced intoxication and withdrawal on the subjects' sleep patterns, behavior, and biochemistry. The investigators will focus upon the mechanisms underlying the development of physical and psychological dependence.

Among the drugs to be tested are haloperidol, dexoxadrol, disulfiram (antabuse), paraldehyde, and chlordiazepoxide alone and in combination with a tranquilizer and an antidepressant.

* * *

The federal government is planning to launch a five-year, nationwide program of

inoculation against rubella, or German measles, as soon as a vaccine is licensed and available in sufficient quantities. It is expected a vaccine will be available by next fall.

Two drug manufacturers had announced before March 1 the development of a vaccine. Two others were developing one. Merck & Co., Rahway, N. J., was the first to announce completion of testing of such a vaccine. The Merck vaccine, which is of the HPV-77 strain, was reported 95% effective in vaccination of 18,000 children and adults. Merck also has been testing a one-shot vaccine against German measles, common measles and mumps.

PEPI Inc., New York, N. Y., said that it had developed a modified live virus vaccine, also of the HPV-77 strain, for the disease and that, after being licensed, it would be marketed by Philips Roxane Laboratories and Parke Davis & Co., PEPI said initial production would be primarily a single-dose vaccine for use in pediatric practice, but that later production would include dosage forms suitable for government-sponsored mass-vaccination programs.

The other two companies developing a rubella vaccine are Smith, Kline & French Laboratories, Philadelphia, and Eli Lilly & Co., Indianapolis. Eli Lilly has been developing a HPV-77 strain. Smith, Kline & French was working on a Cendehill strain. It had proved 95% effective in inoculations of more than 25,000 persons, according to the manufacturer. Another vaccine, using a rubella strain RZ 27-3, has been developed at the University of Pennsylvania.

* * *

Rep. Ancher Nelsen (R., Minn.) has introduced legislation calling for the same federal tax treatment for professional corporations of physicians organized under state law as for business corporations.

"We are overdue in acting to guarantee this same right of organization to professional persons that we have always given other forms and types of businesses," Nelsen told the House.

He noted that the federal government's so-called Kintner regulations issued in 1960 pri-

marily keyed taxation of professional corporations to state law.

"As a result," he said, "many states, Minnesota included, passed laws enabling incorporation under these regulations. Assuming the air was cleared, many corporations were formed. However, in 1965, the Internal Revenue Service issued new regulations reversing its position, which if upheld, make it almost impossible to create a professional corporation, regardless in spite of state laws permitting the same.

* * *

"The position taken by the Internal Revenue Service in 1965 is untenable," he said. "It violates fairness, equity, reasonableness, years of legal precedent, and the intent of Congress as to the tax treatment of business organizations operating legitimately under state law. I would urge all my colleagues to support hearings and passage of this needed legislation at the earliest possible date."

* * *

Sen. Clinton Anderson (D., N.M.) introduced a bill to tie Medicare and Medicaid payments to hospitals and nursing homes to local Blue Cross allowances. The bill complements a measure introduced by Sen. George D. Aiken, (R., Vt.) earlier this year which ties physicians' charges to Blue Shield schedules. Aiken co-sponsored Anderson's bill. Co-sponsoring both bills are Sen. Mike Mansfield, (D., Mont.) and Sen. Winston L. Prouty (R., Vt.). Anderson cosponsored Aiken's bill.

Anderson also said he supports the idea of Sen. John J. Williams (R., Del.) that Congress should give Medicare and Medicaid programs a close look, perhaps a full-dress investigation.

AMERICAN ASSOCIATION FOR ACCREDITATION OF LABORATORY ANIMAL CARE

Twenty new laboratory animal facilities have been fully accredited by the American Association for Accreditation of Laboratory Animal Care. In all, 119 facilities are now fully accredited.

Among 26 medical school facilities that are fully accredited is the Bowman Gray School of Medicine of Wake Forest University.

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SYMPOSIUM ON ATHLETIC INJURIES

The Greensboro Academy of Medicine will sponsor its annual symposium on Athletic Injuries May 28. at the Pilot Country Club, Greensboro. Physicians interested in athletic injuries invited as guests of the Academy. For reservations write: Marshall G. Morris, Jr., M.D., 1309 N. Elm St., Greensboro, N. C. 27401.

In Memoriam

Clarence Whitfield Bailey, M.D.

Dr. Clarence Whitfield Bailey died January 30, 1969 at the age of 68. Born in Roper, North Carolina, he received his B.A. degree from Wake Forest College in 1923, and the M.D. degree from Jefferson Medical College in Philadelphia in 1925. He served his internship in the Philadelphia General Hospital and specialized in the field of internal medicine at the Municipal Hospital in Philadelphia. He came to North Carolina and worked with the Reeves Clinic in Greensboro for one year, then in 1930 came to Rocky Mount as an eye, ear, nose and throat specialist. He was a member of the American College of Surgeons.

He was a gifted surgeon, devoted to his work, loyal to his friends, and outstanding for his granite-like integrity.

It is hereby

Resolved That we, the members of the Edgecombe-Nash Medical Society, express to Mrs. Bailey and his family our respect for the memory and the deeds of Dr. Clarence Whitfield Bailey. It was a privilege to have him in our society. It is further

Resolved That a copy of these resolutions be sent to his wife and to the Archives of the Medical Society of North Carolina; and the original be entered in the records of the Edgecombe-Nash Medical Society.

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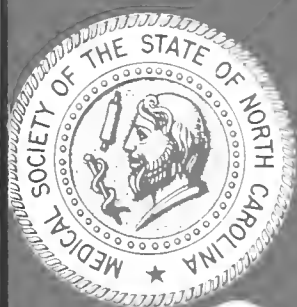
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Charles W. Neville, Jr., M.D.

Assistant Professor of Psychiatry and Medical Director

NORTH CAROLINA

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MEDICAL JOURNAL

PUBLISHED MONTHLY BY THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

IN THIS ISSUE:

Clinical Contraception

HERBERT E. BILL, M.D., M.P.H.

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Precautions: Overgrowth of nonsusceptible organisms may occur. Con-

stant observation is essential. If new infections appear, appropriate measures should be taken.

In infants, increased intracranial pressure with bulging fontanels has been observed. All signs and symptoms have disappeared rapidly upon cessation of treatment.

Side Effects: Gastrointestinal system—anoexia, nausea, vomiting, diarrhea, stomatitis, glossitis, enterocolitis, pruritus ani. Skin—maculopapular and erythematous rashes; a rare case of exfoliative dermatitis has been reported. Photosensitivity: onycholysis and discoloration of the nails (rare). Kidney—rise in BUN, apparently dose related. Transient increase in urinary output, sometimes accompanied by thirst (rare). Hypersensitivity reactions—urticaria, angioneurotic edema, anaphylaxis. Teeth—dental staining (yellow-brown) in children of mothers given the drug during the latter half of pregnancy, and in children given the drug during the neonatal period, infancy and early childhood. Enamel hypoplasia has been seen in a few children. If adverse reaction or idiosyncrasy occurs, discontinue medication and institute appropriate therapy. **Average Adult Daily Dosage:** 150 mg q.i.d. or 300 mg b.i.d. Should be given 1 hour before or 2 hours after meals, since absorption is impaired by the concomitant administration of high calcium content drugs, food and some dairy products. Treatment of streptococcal infections should continue for 10 days, even though symptoms have subsided.

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NUMBER 5

A Manual of Clinical Contraception

HERBERT E. BILL, M.D., M.P.H.*

This manual is intended to serve the physician as a synopsis of the principles and practice of clinical birth control.

The subject is intentionally presented from the point of view of the ideal, and with an approach that many will consider ultra-conservative.

The pendulum of opinion may now, however, be swinging toward a more conservative attitude. In May of 1967 when most of this material was prepared, the posture which it represented seemed generally unpopular among the supporters of "Family Planning." The focus then was on the numbers of women who could be introduced to contraception. Since then the way has been opened for more emphasis on the quality of the contraceptive service to be made available: on the necessity for individualized choice of method, for careful patient instruction, for adequate follow-up, and for continued client contact.

In the light of recent reports of untoward occurrences and the publicity afforded them, every physician must determine his own personal stance in regard to contraceptive service and to his choice of methods. Although he elects practically to diverge from the ideals presented here, he should be familiar with the rationale on which they are based.

The Concept of Complete Contraceptive Counselling

Contraceptive service as a facet of private practice is open to all licensed physicians, and there are methods and modalities which can be safely prescribed by any, regardless of training or experience.

In situations where the physician feels

inadequately prepared to insert an intrauterine device (IUD), he can limit his services to prescription of one of the oral agents. Should he also prefer not to run the risks inherent in "the pill," he should be reminded that some of the "older" methods—such as the condom, foams, or diaphragm and jellies—offer contraception free of undesirable side effects and at a variable but relatively little greater risk of failure than that inherent in the more "modern" or coitus-independent methods.

The thesis here, however, is that thorough rendering of up-to-date contraceptive service includes all modalities and ought to be considered a major medical procedure, requiring the physician's time as well as his knowledge and skill and for which he can expect to be correspondingly compensated.

It has to be recognized that the potential ill effects of the newer methods of birth control, although rare but now quite widely publicized, and the danger of malpractice litigation constitute deterrents to the offering of contraceptive service.

The only rational basis for using the "modern" methods mentioned above is that the danger of serious complications can be avoided and the chances of dissatisfaction, disappointment, or discontinuance greatly reduced by careful history-taking and physical examination; by thoughtful, individualized choice of modality; by reasonable skill and gentleness in any manipulative procedure; and by making sure that the patient understands and will promptly report any potentially significant side effects or complications.

The physician must, if only from the legal point of view, make sure in every case that he has considered the complications and the

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contraindications included in the commercial product descriptions. The number of conditions listed is now considerable, and they involve nearly every organ system of the body. The client must be so instructed that she cannot claim misrepresentation or misunderstanding should a currently recognized untoward reaction develop. It might be wise for the physician to document in his records the examination by which he excluded contraindicating or potentially complicating conditions.

The contraceptive counsellor must habitually establish rapport with the client; take a considerable history; conduct more than a superficial examination; make something of an estimate of the client's character so as to anticipate behavioral reactions; choose from all the available modalities the one best suited to that individual client; assure himself that she will neither be surprised by any unpleasant side effects nor fail to report significant signs or symptoms; that she knows where to get immediate medical attention should complications arise suddenly, and that she understands the essentiality of repeat visits.

To do all this with a minimal chance for later regret will probably require no less than 45 minutes for each new client. The physician can save time for himself by delegating some of the responsibilities to his nurse or even to paramedical personnel, but the total exposure time of the client should not be cut and the physician's accountability can not be escaped. Although the use of the IUD entails less extensive interrogation, examination, and instruction than the "pill," any initial reduction of time would be offset by the necessity for early follow-up visits.

The provision of complete contraceptive service requires of the physician a knowledge of the currently available modalities, familiarity with the bimanual pelvic examination and vaginal visualization, and a modicum of surgical skill and judgment for insertion of the IUD. In order to avoid the occasional causes of dissatisfaction on the part of the client and physician, however, it also requires recognition of the reasons for and against conception control, some thought with regard to its possible long-range ef-

fects on the client's future happiness, and an understanding of the conditions suitable for the various contraceptive methods, as well as recognition of the peculiar advantages and disadvantages of each.

In attempting to meet those requirements, the physician himself has to evaluate his capabilities with regard to the pelvic examination, vaginal visualization, and surgical dexterity. Qualified instruction in, and at least some limited experience with, the techniques required for insertion of intrauterine devices can be arranged through the Maternal and Child Health Section of the State Board of Health, if not through direct contact with one of the medical schools.

The Pros and Cons of Contraceptive Service

The complex ramifications of contraceptive service are evident in the confusing array of reasons for which birth control has been advocated. The following reasons were mentioned at one of the work sessions of the Conference on Family Planning held near San Francisco in 1967 by the Ninth Area, Department of Health, Education and Welfare:

1. To make it possible for women and their husbands to have children only when they want them.
2. To reduce the mortality and morbidity "that may be associated with child birth when pregnancies are too closely spaced."
3. To avoid the unwanted, unloved child.
4. To increase or to improve the care of children (food, clothing, supervision, education) which is more easily achieved in smaller families.
5. To make psychologically beneficial cohabitation possible for couples who do not desire children. (Imputation of the speaker)
6. To reduce the frequency of illegitimacy.
7. To reduce the incidence of abortion and of deaths resulting from criminal abortion.
8. To make it possible for more women to contribute to the support of their families.
9. To equalize birth rates of lower income groups and the more affluent elements of the public.
10. To reduce welfare costs of children on relief or in foster homes.
11. To contribute to a stable life for more indigent families.
12. To control the population (world).
13. To reduce the birth rate (United States).
14. To contribute, incidentally, to health through the taking of Papanicolaou spreads and the discovery of pathology at the examination.

None of these reasons, to be sure was given any official sanction at the time. Each was advocated by a different individual, and it is safe to say that the full list would not have met with unequivocal agreement.

For the doctor who accepts social and global factors as valid influences on his professional behavior, the decision will not be difficult. There are those who espouse the cause with crusading zeal. They only have to be convinced that the importance of social and global factors offsets the risk to the individual client that is involved in the modality which he prescribes.

At the other extreme are physicians who refuse to consider contraception as a proper medical service. They claim—sometimes with matching zeal—religious, ethical, moral, medical or economic support for their attitude. They hold that contraception contributes to sexual license and to the incidence of venereal disease. Some critics charge that contraception interferes with the development of self-control and character.

Others emphasize that fertility has, in times past, been adequately controlled in certain parts of the world, including the United States, apparently without widespread resort to exogenous contraception. Still others recall unwanted pregnancies which produced children who became sources of pride and happiness to their parents. Finally, the critic envisages the problem that would arise should a really reduced productive age group have to maintain a persistently large population of old people who could not support themselves. And he may raise the question as to whether an intentional reduction of the youthful population might not come to be regretted should defensive military action ever prove necessary on a large scale.

On the other hand, it should be safe to assume that the situation with which the practicing physician ordinarily deals is the woman (or couple) who only wishes to continue marital relations without the chance of ensuing pregnancy. The physician who honors the request for conception control in such a case has to assume that current mores justify a woman in artificially controlling her fecundity. Commonly that assumption is accompanied by knowledge that the unwanted

pregnancy would entail the problem of illegitimacy or the financial hardship, impairment of health, and deprivation in regard to housing and education to which immediate, closely spaced, and multiple offspring condemn so many marriages.

In any case, the value to the individuals involved of reasonably assured control of fecundity must be balanced against the estimated risk inherent in the use of the chosen contraceptive.

This decision can not be made routinely or casually without occasional cause for regret on the part of the patient and the conscientious doctor. The latter should be aware of the grounds on which he bases his recommendation.

Social or Psychological Aftermath

The possibility of occasional social or psychological aftermath is worth considering in advance. There is the young couple, for instance, who find themselves infertile after several years of contraception. Will their physician's assurance that they would have been infertile anyway satisfy them throughout a childless life, or might they always regret that wasted period? What about the parents who lose a child after years of successful contraception and then find themselves too old to have another? Or the young Catholic bride who won't be satisfied with the "rhythm method," but spends the later years of her life with a guilty conscience? Moreover, otherwise happy wives (or their spouses) may come to regret the contraceptive measures which they believe abetted the premarital or extramarital experience that led them to expect more from matrimony than their husbands seemed able to supply. And finally, there is the problem of the suspicious spouse.

Most of the foregoing instances may be considered beyond the range of the physician's responsibility, but they can affect an occasional life. They are mentioned in the hope of limiting any blind enthusiasm for indiscriminate and routine use of contraception.

Physical Risks of Contraception

Certainly it is the risk of aberrant physical reactions which pose the major problem,

and it might as well be admitted for the record that a truly satisfactory exogenous contraceptive has still to be discovered. Reference to the labeling information of any of the commercial products for oral administration¹ or for intrauterine insertion² confirms that last statement; while the condoms, foams, diaphragms, jellies and creams have serious drawbacks in regard to convenience, patient acceptability, and or efficacy.

Each of the many currently acceptable contraceptive modalities, then, has its own peculiar preferential conditions, its own advantages and disadvantages with which the physician should be familiar and which are tabulated at the end of this article.

Old Versus New Methods

Not only should the hazards accompanying contraception be weighed against the value to the individual, but the advantages, efficiency and risks associated with the newer coitus-independent modalities—"the pill" and the IUD—must be compared, for the individual client, with those inherent in the older methods.

Like most forms of medical therapy, the newer contraceptives work beautifully in the great majority of cases. Discouragement, disappointment, and even discontinuance, however, may follow unexpected or unexplained side effects or complications, and it is the isolated occurrence of serious reactions when neglected, or the rare masking of serious intercurrent illness with delay in appropriate treatment that can cause bad trouble.

The reported recent disclosure by the FDA of 77 deaths related to the taking of "birth control pills" attests to the reality of the risk of bad trouble.³ Receipt of 336 additional reports of "serious disease" associated with use of the pill over a two-year period was announced in the same notice.

The Survey of Fellows of the American College of Obstetricians and Gynecologists, reported by the Food and Drug Administration (January, 1968)⁴ gives ample evidence of the risk associated with the IUD. The 10 deaths, the 15 cases of intestinal obstruction, the other 192 perforations of the uterine corpus, and the 369 cases of critical inflammatory disease which were associated

with the use of the IUD calls for serious consideration, even though a direct cause and effect relationship was often not definitely demonstrable. The possible masking of uterine malignancy by the bleeding which so often follows insertion of the intrauterine device would be a risk even in the absence of a causal relationship.

The choice of a contraceptive method, therefore, is often a complicated problem from the physical point of view. The patient's preference must of course be considered, but the final choice ought to rest with the physician.

History and Physical Examination

The foregoing choice, then, requires a fairly complete medical interrogation and more than a cursory pelvic examination.

Besides a menstrual and obstetrical history and individualized questioning about sexual activity, the contraception counsellor, particularly if prescription of a "pill" is contemplated, should specifically consider migraine, emotional depression or other psychogenic abnormality, visual disturbances, abnormalities of the breasts, edema, heart disease, hypertension, renal dysfunction, epilepsy, diabetes, phlebitis, cerebrovascular accident, or varices. Any record of digestive disturbance, diarrhea or abdominal pain probably ought to be elicited as well as of vulvovaginitis, dermatitis, jaundice, gall-bladder disease, and tumors.

The history, together with the examination, ought to exclude the possibility of a significant endocrinological disorder as well as of pregnancy or other pelvic or mammary neoplasm, while suggestive leads should be followed by appropriate laboratory studies.

The extent of the physical examination will, of course, vary with the patient's age and physical condition, with the nature of the visit whether initial or repeat, and with the length of time since her last examination.

Contraception service certainly offers the opportunity for routine physical examination which many women might otherwise not get. The extent and thoroughness of the examination will depend to a considerable extent on the pressures of the physician's

practice and on his attitude toward contraception. Breast examination, however, should be mandatory, as well as the bimanual pelvic examination, vaginal visualization, and the annual Papanicolaou spreads. Routine inspection of the vulva and rectum, in older

*Synopsis of Contraceptive Methods:
Conditions, Advantages, Disadvantages*

A. The first part of the following section summarizes the various coitus-dependent contraceptive methods. Precautions must be taken at the time of intercourse.

Synopsis of Coitus-Dependent Contraceptive Methods

Method	Conditions	Advantages	Disadvantages
1. Abstinence	Weak drive of both partners; preoccupation; absence of erotic stimuli	Simplicity	Alleged psychogenic disturbances "Unnaturalness" Predisposition to extramarital activity
2. Overindulgence; sterility	Excessive drive of both partners	Simplicity	Reliability undetermined, risk of resulting apathy
3. Homosexual practices	Individual predisposition	Fecundity uninvolved	Morally reprehensible to the heterosexual majority
4. Mutual masturbation; oral perversions	Acceptance by both partners	Simplicity	Continued satisfaction probably rare
5. Withdrawal	Male control; acceptance by both partners	Simplicity	Risk of failure, male dissatisfaction
6. Douches	Immediately available plumbing	Simplicity	Unreliability; bothersome physically and mentally; inconvenience
7. Jellies, creams	Availability	Simplicity Absence of medical risk	Relative unreliability; inconvenience; mood-disturbing
8. Foams, foam tablets	Availability	Simplicity Absence of medical risk	Suspected unreliability; inconvenience
9. Condom	Availability	Simplicity May retard precocious ejaculation	Reduced sensitivity for male; occasional female objection; small risk
10. Diaphragm with jelly or cream	Availability	May supply needed lubrication	Bothersome preliminary; risk of failure

women particularly, habitual weight and blood pressure determinations, and urinalysis should be included, and semi-annual Papanicolaou spreads for women over the age of 34.

Whatever modality is chosen, it should probably be recommended on a tentative basis. The chance of disappointment or discontinuance with a recognized trial will be less.

It must also be realized that the physician's attitude and the influence of his personality may be crucial in the constancy of the client's motivation, in her acceptance or rejection of the prescribed method, in her timely reporting of significant side effects, or the possibility of her transfer to some other doctor because of those side effects.

B. *Intermediate: coitus dependent and independent*

Rhythm method: Counting back 14 days from the earliest possible anticipated onset of the next menses and similarly from the latest possible anticipated onset establishes the time limits of potential ovulation. Most patients can be made to understand the physiology of these relationships and that extending the abstinence in either direction by three or four more days promises increasing assurance of contraception.

The temperature curve and vaginal pH determinations cannot be trusted to distinguish the onset of fertility. They may quite reliably indicate the day of ovulation and point to the beginning, two or three days later, of the period of natural infertility pre-

ceding the next menses. They may in this way give partial reassurance to the "rhythm method."

Conditions

A considerable degree of motivation is essential.

Reasonable intelligence makes understanding of the instructions more likely.

Adequate emotional stability, self-control, and sobriety are required of one if not both partners.

Reasonably regular menses are a necessity.

Advantages

Denominational acceptance.

Absence of medical risk.

Simplicity.

Disadvantages

Risk of failure.

Risk of misuse.

Risk of irregular ovulation.

Bothersome if based on daily temperature.

- C. The last four categories of contraceptives share the characteristic of being "coitus-independent."

The "conditions," advantages," and "disadvantages" need to be considered separately but at too great length to tabulate.

1. *Oral Contraceptives (pills) "Combined" or "Sequential"*

Conditions

Genital and breast cancer must be satisfactorily excluded.

The presence or history of phlebitis, thrombophlebitis, or embolism should contraindicate "the pill" except in extreme situations.

History, evidence, or suggestion of a cerebrovascular accident of any kind should contraindicate prescription of oral contraceptives.

Headaches of more than "average" severity, duration or frequency, particularly those with characteristics of migraine, should contraindicate oral contraceptives unless the client understands the risk of exacerbation, and probably then only in extreme situations.

Intermittent visual disturbances which are not readily explainable are probably contraindications because of the risk of later confusion with similar complaints which have been associated with papilledema or vascular lesions of the retina during administration of oral contraceptives.

For complete safety, there should be no history nor any evidence of liver disease or dysfunction.

Chronic renal, cardiac, and hypertensive disease, or asthma for that matter, must be carefully evaluated because of the possibility of water retention while oral contraceptives are being taken and the confusion which might result.

Any evidence of metabolic disturbance which could point to real pituitary or adrenal disease or to significant thyroid dysfunction should probably

also contraindicate the prescription of oral contraceptives.

A history of severe psychic depression is a reason for withholding oral contraceptives.

Amenorrhea or any other reasonable suggestion of pregnancy makes the administration of oral contraceptives unwise. The potential long-range effect on a surviving embryo has not been made clear. Late discovery, some years ago, of developmental defects following the administration of certain progestins suggests the possibility.

Because of the possible effect on actively growing-contraceptives on the baby by their secretion in the mother's milk, it might be well to postpone prescription of these agents for the lactating mother until she discontinues nursing.

Because of the possible effect on actively growing epiphyses, oral contraceptives should be withheld from the adolescent girl until she attains full stature.

The candidate for oral contraceptives should be well motivated and have reasonable intelligence, emotional stability, and predictably regular habits.

Advantages

Unrelated to coitus.

High degree of efficacy.

Frequent relief of dysmenorrhea.

Possible relief of irregular uterine bleeding, menorrhagia or hypomenorrhea, presumably due to chemical imbalance.

Occasional claims of mood elevation.

Disadvantages

Rigid adherence to dosage schedule.

A long list of possible side effects which may require discontinuance of the drug, particularly if they persist after the first three months of administration, and which must be discussed with the client in advance.

Apparently uncontrolled weight gain; edema of legs and/or hands and face.

Nausea.

Breast tenderness.

Break-through bleeding; possibility of genital malignancy.

Changes or abnormality in the cyclic bleeding: reduction or increase in amount or duration of flow.

Psychic depression; occurrence or exacerbation of "premenstrual tension," headaches, visual disturbances, or vertigo.

Abnormal brown pigmentation of skin: chloasma, often of the face.

Developing or increased leukorrhea, pruritus vulvae, or monilial vaginitis.

The client must at least be so instructed that she will not fail to report the onset of signs or symptoms that might point to the other significant complications which have reportedly been associated, even though rarely, with oral contraceptive agents.

Table 1
Contraceptive Pills in Descending Order of Amount of Progestogen
COMBINATION PILLS

<u>Brand Name</u>	<u>Company</u>	<u>Progestogen</u>	<u>Chemical Formula</u>	<u>Estrogen</u>	
OrthoNovum 10 mg.	Ortho	Norethindrone 10 mg.	17 alpha-ethinyl-17-hydroxy 4-estren-3-one	Mestranol	0.06
Provest	Upjohn	Provera 10 mg.	Medroxy Progesterone acetate	Ethinyl Estradiol	0.05
Enovid 10 mg.	Searle	Norethinodrel 9.85 mg.	17a-ethinyl-17-hydroxy 5(10) estren-3-one	Mestranol	0.15 mg.
Enovid 5 mg.	Searle	Norethinodrel 5.0 mg.	17a-ethinyl-17-hydroxy 5(10)estren-3-one	Mestranol	0.075 mg.
Enovid E	Searle	Norethinodrel 2.5 mg.	17a-ethinyl-17-hydroxy 5(10)estren-3-one	Mestranol	0.1 mg.
Norlestrin 2.5 mg.	Parke Davis	Norethindrone Acetate 2.5 mg.	17 alpha-ethinyl- 19 Nortestosterone acetate	Ethinyl estradiol	0.05 mg.
Norinyl 2 mg.	Syntex	Norethindrone 2.0 mg.	17a-ethinyl 17-hydroxy 4-estren-3-one	Mestranol	0.1 mg.
OrthoNovum 2 mg.	Ortho	Norethindrone 2.0 mg.	17-alpha-ethinyl-17-hydroxy 4-estren-3-one	Mestranol Ethinyl estradiol 3-Methyl Ether	0.10 mg.
Norlestrin 1 mg.	Parke Davis	Norethindrone Acetate 1.0 mg.	17alpha-ethinyl 19 Nortestosterone Acetate	Ethinyl estradiol	0.05 mg.
Norlestrin(21) 1 mg. (21 tabs)	Parke Davis	Norethindrone Acetate 1.0 mg.	17alpha-ethinyl 19 Nortestosterone Acetate	Ethinyl Estradiol	0.05 mg.
Norlestrin (28) 1 mg. (+7 inert)	Parke Davis	Norethindrone Acetate 1.0 mg.	17alpha-ethinyl 19 Nortestosterone Acetate	Ethinyl Estradiol	0.05 mg.
OrthoNovum 1 mg.	Ortho	Norethindrone 1.0 mg.	17 alpha-ethinyl-17-hydroxy 4-estren-3-one	Mestranol	0.05 mg.
OrthoNovum 1/80, 21	Ortho	Norethindrone 1.0 mg.	17-alpha-ethinyl-17 hydroxy- 4-estren-3-one	Mestranol	0.08 mg.
Ovulen (20)	Searle	Ethinodrel 1.0 mg.	Ethinodiol Diacetate	Mestranol	0.1 mg.
Ovulen (21)	Searle	Ethinodrel 1.0 mg.	Ethinodiol Diacetate	Mestranol	0.1 mg.
Ovral	Wyeth	Norgestrel 0.5 mg.	dl-13-beta-ethyl-17-alpha- ethinyl-17-beta-hydroxygon- 4-en-3-one	Ethinyl estradiol	0.05
SEQUENTIAL PILLS					
Oracon	Mead Johnson	Dimethisterone Acetate 25 mg.	17B-hydroxy-6a-methyl 17-(1-propynyl)-androst- 4-en-3-one	Ethinyl Estradiol	0.1 mg.
C Quens	Lilly	Chlormadinone Acetate 2 mg.		Mestranol	0.08 mg.
Norquen	Syntex	Norethindrone 2 mg.	17a-ethinyl-17-hydroxy- 4-estren-3-one	Mestranol	0.08 mg.
OrthoNovum S.Q.	Ortho	Norethindrone 2 mg.	17-alpha-ethinyl-17-hydroxy-	Mestranol	0.08 mg.

Evidence suggestive of phlebitis or embolic phenomena.

Disturbance of diabetic or epileptic management.
Diarrhea, abdominal pain, indigestion, jaundice.

Acne, loss of hair from the scalp, growth of hair on the body.

More serious dermatological disease including lupus erythematosus, erythema, multiforme and nodosum and hemorrhagic dermatitis.

Amenorrhea, complete failure of menstrual flow to follow regular monthly discontinuance of oral contraceptive. The frequency with which this response is self-limited or the associated lack of ovulation is curable with currently available therapy remains to be established.

The physician also must bear in mind the following conditions or situations:

Uterine fibroids may increase significantly in size,

and any ovarian tumor may be attributed to the pills whether enlargement occurs or not.

Uterine enlargement and/or endometrial distortion found at operation or biopsy may confuse the unsuspecting surgeon or pathologist.

Association of at least pseudomalignant alterations in the cellular patterns of the cervix, though uncommon, are now strongly suggestive.

The need to record at least annual blood pressure readings is emphasized by recent allegation of occasional hypertensive effect of "the pill."

There is no reason to suspect the potentiality of a long-range effect on the postmenopausal physiology, but it has to be admitted that this possibility has not yet been objectively excluded.

A jealous husband may become suspicious of his presumably infertile wife.

Table 2
Contraceptive Pills in Descending Order of Amount of Estrogen

<u>Brand Name</u>	<u>Company</u>	<u>Estrogen</u>		<u>Chemical Formula</u>	<u>Progestogen</u>	
Enovid 10 mg.	Searle	Mestranol	0.15 mg.	17-ethynyles-tradiol 3-methyl ether	Norethynodrel	9.65 mg.
Enovid E	Searle	Mestranol	0.10 mg.	17-ethynyles-tradiol 3-methyl ether	Norethynodrel	2.5 mg.
Notinyl	Syntex	Mestranol	0.10 mg.	ethinyl estradiol 3-methyl ether	Norethynodrel	2.0 mg.
Ovulen (20)	Searle	Mestranol	0.10 mg.	17-ethynyles-tradiol 3 methyl ether	Ethynodiol	1.0 mg.
Ovulen (21)	Searle	Mestranol	0.10 mg.	17-ethynyles-tradiol 3 methyl ether	Ethynodiol	1.0 mg.
OrthoNovum 2 mg.	Ortho	Mestranol	0.10 mg.	Ethinyl estradiol 3 methyl ether	Norethindrone	2.0 mg.
OrthoNovum 1/80, 21	Ortho	Mestranol	0.08 mg.	Ethinyl estradiol 3 methyl ether	Norethindrone	1.0 mg.
Enovid 5 mg.	Searle	Mestranol	0.075 mg.	17-ethynyles-tradiol 3 methyl ether	Norethynodrel	5.0 mg.
OrthoNovum 10 mg.	Ortho	Mestranol	0.06 mg.	Ethinyl estradiol 3 methyl ether	Norethindrone	10.0 mg.
Norlestrin 1 mg.	Parke Davis	Ethinyl Estradiol	0.05 mg.	17-alpha-ethinyl 1,3,5-estratriene 3,17 beta diol	Norethindrone	1 mg.
Norlestrin (21) 1 mg.	Parke Davis	Ethinyl Estradiol	0.05 mg.	17-alpha-ethinyl 1,3,5,-estratriene 3,17 beta diol	Norethindrone	1 mg.
Norlestrin (28) 1 mg.	Parke Davis	Ethinyl Estradiol	0.05 mg.	17-alpha-ethinyl 1,3,5,-estratriene 3,17 beta diol	Norethindrone	1 mg.
Norlestrin 2.5 mg.	Parke Davis	Ethinyl Estradiol	0.05 mg.	17-alpha-ethinyl 1,3,5,-estratriene 3,17 beta diol	Norethindrone	2.5 mg.
OrthoNovum 1 mg.	Ortho	Mestranol	0.05 mg.	Ethinyl estradiol 3 methyl ether	Norethindrone	1.0 mg.
Ovral	Wyeth	Ethinyl Estradiol	0.05 mg.	19 Nor 17a-pregna 1,3,5 (10)-trien- 20-yne-3,17 diol	Norgestrel	0.5 mg.
Provest	Upjohn	Ethinyl Estradiol	0.05 mg.		Provera	10 mg.
S E Q U E N T I A L P I L L S						
Oracon	Mead Johnson	Ethinyl Estradiol	1.0 mg.	19 Nor 17a-pregna 1,3,5, (10)-trien- 20-yne-3.17 diol	Dimethisterone Acetate	25 mg.
C Quens	Lilly	Mestranol	0.08		Chlormadinone Acetate	2 mg.
Norquen	Syntex	Mestranol	0.08	Ethinyl Estradiol 3 - Methyl ether	Norethindrone	2 mg.
OrthoNovum S.Q.	Ortho	Mestranol	0.08	Ethinyl Estradiol 3 - Methyl ether	Norethindrone	2 mg.

Choice of Contraceptive Agent

The choice of contraceptive agent to prescribe may become a problem to the physician who wants some objective standards to follow.

Since the contraceptive efficiency of any drug in clinical trial depends so heavily on the education, intellect, motivation, and standard of living of the women in the series, it might as well be supposed, in the absence of personal experience to the con-

trary, that there is no significant difference among the various products in regard to the risk of failure. Objective choice of brand must depend, then, on other factors. The vast numbers of women who are successfully taking each brand testifies to the fact that the type of compound now available evidently makes little difference to the "normal" woman. There are, however, distinct variations among the different formulae which might logically be of significance for

women whose endogenous hormonal production, chemical balance, or endocrine sensitivities might be near or beyond the limits of normal.

When tabulated in the order of progestogen and estrogen content (Tables 1 and 2), the various proprietary agents are found to differ considerably. Not only do they differ by weight of component fractions, but in a number of instances by chemical structure. While the differences in weight may seem minuscule, the differences which they, as well as the variations in chemical structure, represent in respect to potency or effectiveness can be quite marked.⁵

Variations in potency and in effects are documented in Table 3 and 4, which include compounds used in currently marketed contraceptive regimens.

Table 3
Relative Potency of Progesterone and Progestational Agents Using the Induction of Withdrawal Bleeding as an Index

Agent	Dose (mg/d for 5 d)	Total Dosage (mg)
Progesterone	90-100	450-500
Ethisterone	20-30	100-150
Norethindrone	2.5-5	12.5-25
Medroxyprogesterone acetate	2.5-5	12.5-25
*Chlormadinone acetate	2.5-5	12.5-25
*Norethindrone acetate	1.5-3	7.5-15
*Ethinodiol diacetate	0.5-1	2.5-5

*Not available commercially except in the contraceptive regimen. From Greenblatt (5).

Attention should be called to the reduced total amount of progestogen which is administered in the "sequential" routines or, from another point of view, the longer period of unopposed estrogen effect.

It has been suggested that properly individualized use of the contraceptive pills might involve a more specific distinction among the available products based on their

peculiar dosages, degrees of potency, and effects.⁷

The idea is to prescribe initially or change to a compound with a greater estrogen content and/or a less potent or less prolonged progestogen effect for the woman whose endogenous estrogen levels are low or whose endogenous progestogen production is high. Conversely, the woman whose endogenous estrogen production is high or whose endogenous progestogen levels are low should be given a brand with lower estrogen levels and/or a higher or more prolonged progestogen content or potency.

Proper scientific control of dosage should perhaps be based on profiles of the individual woman's current, varying sex endocrine concentrations over the full cycle. If this is impractical, more sophisticated use of hormonal contraceptives, at least in potential problem cases, might well be correlated with the individual vaginal cytology. Such studies can be done in the office laboratory with surprising ease and, if properly interpreted in relation to the particular time of the individual woman's cycle, with rewarding though perhaps not absolute assurance.⁸

Further references to rapid office methods of preparation, staining, reading, and interpretation of vaginal spreads are given in the bibliography.⁹⁻¹¹ Where this laboratory control is not applied, the clinical characteristics can point to at least tentative indications.

In a general sense, symptoms similar to those of early pregnancy may reasonably suggest higher levels of endogenous estrogen, while lower levels are implied by the signs and symptoms that might occur with the menopause. Higher concentrations of endogenous progestogen may be suggested

Table 4
Endocrine Properties of Oral Progestogens
(Currently in Clinical Use in the U. S. A.)

	Progestational	Estrogenic	Androgenic	Anabolic	Antiestrogen	Pregnancy Maintenance
Norethynodrel	+	+	0	0	0	0
Norethindrone	+	0	+	+	+	0
Norethindrone acetate	+	0	+	+	—	0
Dimethisterone	+	0	0	0	—	0
Medroxyprogesterone acetate	+	0	±	—	+	+
Chlormadinone acetate	+	0	—	—	+	+
Ethinodiol diacetate	+	+	+	0	+	0

Adapted by Greenblatt (5) from Drill (6)

by premenstrual-like signs and symptoms, while lower amounts may produce reactions—particularly bleeding—that would be common to anovulatory cycles.¹²

Table 5 lists the clinical uses of progestogens. Like Tables 3 and 4 it is taken from an article by R. B. Greenblatt which specifies conditions in the presence of which the

Table 5
Clinical Use of Progestogens

1. Amenorrhea
2. Dysfunctional uterine bleeding
3. Essential dysmenorrhea
4. Endometriosis
5. Premenstrual tension
6. Adenomatous endometrial hyperplasia
7. Contraception
8. Mazoplasia and virginial breast hypertrophy
9. Nymphomania
10. Delay of menstruation

Adapted from Greenblatt (5).

prescription of brands with greater amounts, greater potency, or more prolonged administration of progestogen would seem to be advisable.

It has been reported that reduced duration of menstrual flow can be attributed to or induced by excessive progestogen, while reduction in the amount of flow can be caused or produced by excessive estrogen.¹³ This can be considered no more than a tentative rule of thumb.

Finally it would be wise, of course, to avoid the administration of contraceptive compounds with androgenic effects to hirsute women, or of those with particular anti-estrogenic properties to the client thought to be endogenously hypoestrogenic.

2. Intrauterine Devices

Conditions

The client must understand the necessity of returning to the physician after one month, and probably again after three months, for routine reexamination as well as for the regular annual or semi-annual check-up.

She must be able to realize the reassurance available from self-palpation, with those devices which have them, of the extracervical threads or intra-cervical shank.

IUDs should not be prescribed routinely for nulliparous women, at least not for office insertion. Not only is the procedure liable to be painful, but expulsion rates are usually high.

A cervix that is severely lacerated or patulous

or both may not retain the intrauterine device. Trial may not be worthwhile.

Most favorable condition is at end of menstrual bleeding, postpartum or postabortal, while the cervix is still soft.

Unless there is real doubt that the client will return for examination as recommended, the risk of early pregnancy itself would make it wise to insist routinely on insertion only in the beginning cycle, shortly after delivery or abortion.

A rapid office test for pregnancy is advisable in the presence of any suggestion by history or examination that conception may already have occurred. A negative test at six or more weeks following the last menstrual period might come to be significant medicolegally as well as physiologically.

There should be neither a history nor objective evidence of irregular menstrual bleeding. The IUD should be considered reluctantly in the presence of such signs, and only if no other method of contraception can be satisfactorily substituted and all possible tests of malignancy have been negative. These include repeated Papanicolaou spreads, Shiller's iodine uptake test, and occasional diagnostic dilation and curettage, as well as careful inspection and palpation.

Report of metaplasia, if in cells of uterine or cervical origin, probably should contraindicate the use of intrauterine devices, and so should such a history, unless perhaps repeated cytological studies have been negative. The device should be removed promptly when such a report follows insertion. This recommendation would seem wise because of widespread suspicion also in the case of reported dysplasia, although such a condition has been said to be unaffected by the presence of an IUD.

A reasonably healthy cervix should in any event be a requirement. The IUD probably should not be inserted in the presence of severe erosion, eversion ectropion, or unobliterated nabothian cysts or abscesses. Chronic cervicitis, if considered to reflect continuing infection, should be cleared up before insertion of the device.

There should be no history or physical finding suggestive of recent acute or chronic pelvic inflammatory disease. The IUD should probably be considered in such circumstances only if the sedimentation rate as well as the temperature is normal, and preferably following a provocative pelvic examination without subsequent reaction. Cervical culture for gonococcus at the time of insertion has been suggested for a public health clinic population at least, as an indication, when reported as positive, for antibiotic prophylaxis.¹³

Palpable subserous fibroids are a contraindication to the extent that subserous myomas may be accompanied by submucous myomas.

Uterine "malposition" must be recognized.

Placement of the "rat-toothed" tenaculum on the cervix causes little or no pain and its routine use greatly facilitates insertion of the device.

Table 6
Cumulative Rates of Events and Closures per 100 Users,
by Type of Termination: All Devices by Type and Size, Two Years of Use

Type of Termination	Loops				Spirals		Bows		Steel ring	Double coil
	A	B	C	D	Small	Large	Small	Large		
Events:										
Pregnancies	9.7	6.3	4.8	4.2						
Expulsions:					5.0	2.5	16.1	7.6	9.1	3.8
First	22.8	20.9	17.3	11.5	33.1	23.6	4.8	1.9	18.3	17.9
Later	4.9	4.0	7.3	4.5	10.4	7.1	1.5	1.2	4.6	3.6
Removals:										
Bleeding and/or pain	13.2	18.0	16.6	17.5	13.0	21.1	16.0	16.2	11.9	21.4
Other medical	6.8	5.8	5.5	5.8	5.8	11.4	4.3	6.0	3.5	5.6
Planning pregnancy	3.5	1.1	2.8	2.5	3.6	2.6	.1	2.1	4.3	2.2
Other personal	7.3	4.4	3.5	4.2	12.0	6.3	7.4	3.9	3.3	2.6
Closures:										
Pregnancies	8.0	5.8	4.1	3.6	2.9	1.9	12.9	6.1	8.0	3.6
Expulsions:										
First	6.9	6.5	5.3	3.6	9.6	7.4	1.2	0.8	5.4	7.8
Later	2.5	2.1	3.2	3.4	4.0	2.1	0.3	0.5	2.3	1.9
Removals:										
Bleeding and/or pain	8.7	16.4	14.9	15.3	8.7	13.8	9.2	13.5	10.0	20.2
Other medical	3.0	4.7	4.3	4.2	4.2	6.0	3.5	4.9	3.2	5.0
Planning pregnancy	1.6	1.1	2.2	1.8	2.0	2.2	3.1	1.6	3.3	2.2
Other personal	5.7	4.2	3.2	3.5	9.5	4.7	6.3	3.3	3.1	2.3
Total closures	36.4	40.8	37.2	34.4	40.9	38.1	36.5	30.7	35.3	43.0
Continuation Rate	63.6	59.2	62.8	65.6	59.1	61.9	63.5	69.3	64.7	57.0
Woman months of use	13,453	12,463	50,775	121,566	5,938	29,331	19,636	41,755	25,829	22,619

From Tietze (19)

Instructions for insertion accompany the various commercially distributed intrauterine devices. Except for the gynecologically competent physician, however, insertion should not be attempted without personal instruction by a qualified operator, and preferably only after some supervised clinical experience.

It will be no disgrace, but the better part of wisdom, to discontinue attempts to introduce the IUD in the rare instance of some evident, unexpected obstruction. Crooked cervical canals do occur, and previously ruptured endocervix may not lead directly through the internal os.

Advantages

Unrelated to coitus.

Simple to use.

Nothing to remember except to make sure it has not fallen out.

Disadvantages

Abnormal bleeding; intermenstrual with or without menorrhagia; severe enough to require removal in perhaps one fifth or more of all insertions (Tables 6 and 7). The possibility that this bleeding might be a manifestation of uterine malignancy must not be forgotten. Papanicolaou spreads must be obtained. Device must be removed if bleeding continues past third month.

Efforts must be made to exclude the possibility of an early implanted pregnancy. While a pregnancy can go on to term in spite of the presence of the IUD, many such cases terminate in abortion.

When an early pregnancy is found to share the

endometrial cavity with an IUD, removal of the latter evidently entails a high risk of subsequent abortion. It would thus seem advisable to leave the device in place.

There may be, on the other hand, an increased risk of infection in the already aborting uterus which does contain an IUD. As long as the latter is allowed to remain in the pregnant uterus, particular attention must be paid to any evidence of threatening abortion and to the prompt institution of prophylaxis should incipient infection be suspected.

Occasional cramps, pain, or exaggerated dysmenorrhea may occur.

Longitudinal rotation of the indwelling device is not uncommon.

Hospitalization and anesthesia may be advisable for the otherwise painful removal of a malpositioned IUD.

The real though rare risk of uterine or cervical perforation cannot be forgotten.

There seems to be a possibility of activating chronic tubal infection.

Husbands may object to a device with a sharp intracervical shank.

The not infrequent occurrence of spontaneous expulsion can be embarrassing and inconvenient, and when unrecognized, may occasionally allow an unintended conception.

Attention is called to the fact that not more than one half of the clients with IUD's are known to

Table 7
Annual and Cumulative Rates of Events and Closures per 100 Users.

Type of Termination	Annual Rates						Cumulative Rates					
	1st year	2nd year	3rd year	4th year	5th year	6th year	1st year	2nd year	3rd year	4th year	5th year	6th year
Events:												
Pregnancies	2.7	2.0	1.2	1.4	0.6	0.9	2.7	4.2	5.0	5.8	6.1	6.5
Expulsions:					0.2	0.0	9.5	11.5	12.5	13.0	13.1	13.1
First	9.5	2.5	1.6	0.8	0.2	0.0	3.2	4.5	5.2	5.4	5.5	5.5
Later	3.2	1.7	1.1	0.3								
Removals:					2.7	2.5	11.7	17.5	22.4	25.6	27.0	28.1
Bleeding and/or pain	11.7	7.6	7.5	5.6	3.1	0.3	3.5	5.8	7.0	7.9	9.5	9.6
Other medical	3.5	3.0	2.0	1.6	2.2	1.1	0.9	2.5	4.1	5.5	6.6	7.1
Planning pregnancy	0.9	2.0	2.4	2.5	1.9	2.1	2.2	4.2	5.5	6.8	7.8	8.7
Other personal	2.2	2.5	2.1	2.3								
Closures:												
Pregnancies	2.4	1.6	1.0	1.1	0.4	0.6	2.4	3.6	4.2	4.9	5.1	5.4
Expulsions:												
First	2.9	0.9	0.5	0.3	0.1	0.0	2.9	3.6	3.9	4.1	4.2	4.2
Later	1.9	0.7	0.6	0.2	0.0	0.0	1.9	2.4	2.8	2.9	2.9	2.9
Removals:					2.2	2.2	10.4	15.3	19.5	22.3	23.4	24.4
Bleeding and/or pain	10.4	6.3	6.4	5.0	2.1	0.3	2.5	4.2	5.1	5.7	6.8	6.9
Other medical	2.5	2.2	1.3	1.2	2.2	1.1	0.6	1.8	3.1	4.2	5.3	5.8
Planning pregnancy	0.6	1.5	1.9	1.9	1.6	2.1	1.9	3.5	4.8	6.0	6.9	7.8
Other personal	1.9	2.1	1.9	2.2								
Total closures	22.6	15.3	13.6	11.9	8.6	6.3	22.6	34.4	43.4	50.1	54.6	57.4
Continuation rate	77.4	84.7	86.4	88.1	91.4	93.7	77.4	65.6	56.6	49.9	34.4	42.6
Woman—months of use	72,046	49,520	32,647	19,098	7,375	2,363	72,046	121,566	154,213	173,311	180,686	183,049

From Tietze (19)

be still using them at the end of four years and to the 57% cumulative rate of discontinuance shown at six years in Table 7.

Reported failure rates range from 3% to 9%.

A jealous husband may become seriously suspicious.

Choice of device: Some objective data on the various common types and sizes of intrauterine devices are shown in Tables 6 and 7. They may help in the choice of modality by the physician whose preferences are not already established.

It should be noted that the preponderant number of uterine perforations complicated by intestinal obstruction have been associated with the "closed" types of device—bows and coils.¹⁴

3. *Injections: Monthly or longer intervals: estrogens and/or progestogens*

Conditions

Still experimental. Patient must understand experimental nature of its use and accept in writing.

Advantages

Simplicity
Convenience

Disadvantages

Possibility of disturbed uterine bleeding.
Undetermined.

4. *Sterilization: Male*

Conditions

Acceptably completed family or strong medical contraindication to further pregnancies.

Thorough discussion of subject and adequate time for unemotional consideration and evaluation.

Patient's agreement in writing to accept irreversibility of sterility and possibility of failure. The former seems probable, the latter remotely possible.

Advantages

Coitus-unrelated.
Simplicity.
Permanence

Disadvantages

Reversibility cannot be promised.

Possible future desire for more children because of death of living children, divorce, or death of wife and remarriage.

Occasional but very rare failure.

Compromising position of wife in case of subquiet pregnancy.

Jealous wife may be suspicious.

5. *Sterilization: Female*

Conditions

Same as for male.

Particular applicability if abdomen is to be opened anyway because of surgery for some other reason.

Advantages

Same as for male.

Disadvantages

Possible cure or amelioration of chronic disease because of which sterilization might have been performed.

Jealous husband's suspicion of wife's fidelity.

6. Therapeutic Abortion**Condition**

A last resort and an admission of contraceptive failure.

Advantages

Quite finally effective.

Disadvantages

As yet applicable only in certain states and countries and often only in specific situations: pregnancy following rape or incest; in which the mother's life or health are jeopardized; or which can be expected to produce an abnormal child.

Requires hospitalization.

Risk of prolonged remorse.¹⁵

D. Modalities under Study or Contemplation¹⁶**1. Abortifacants: "morning-after" medication**

The use of an apparent abortifacant shortly before the expected onset of the next menstrual period has as yet incompletely satisfactory clinical trial abroad. Bleeding supposedly induced by this medication apparently produces an unrecognizable early abortion. The woman who has had intercourse during the previous month never knows whether or not she was pregnant at the time, since the induced bleeding, if she were not, would have been indistinguishable in character from that of the induced early abortion.

The intriguing idea of a "morning-after pill" is, of course, getting considerable attention whether or not it might be considered as an immediate abortifacant.

2. Chemical compounds

Various chemical compounds are under examination that are intended to interfere with one or another stage in the sequence of energy transactions involved in ovulation, in the production of mature spermatozoa, in fertilization or nidation.

Chlormadinone is an example of such compounds. Interesting and evidently successful trials with its uninterrupted use in daily doses of 0.5 mg have been recorded. An interesting feature of one report is that most of these women ovulate and the contraceptive *modus operandi* is undetermined.

Uterine bleeding in a considerable proportion of women on this regimen is apparently irregular and or quite frequent.¹⁷

3. Contraception by immunization¹⁸

Application of the principles of immunization are being intensively studied, again in relation to most, if not all, endogenous chemical factors involved in the reproductive process. The underlying hypotheses seem realistic and the eventually practical payoff is said to be promising.

4. Contraceptive pills or injections for males

These agents are under investigation, with promise of contraceptive success and apparent biochemical acceptability. A considerable change in masculine concepts will probably be necessary for widespread use.

5. Mass contraception

There are, finally, the imagined use of a contraceptive chemical which can be added to the water supply or as a supplement to flour, for instance.

The present unacceptability of the social implications inherent in such mass contraception needs no emphasis here.

Suggestions for Individualization

There should be nothing routine about contraceptive service except for the thoroughness of the examination. Some guides can be set down as general suggestions for individualization.

1. Because of the possibility of patient dissatisfaction or the development of unpleasant or disturbing side effects, the initially tentative nature of any previously untried contraceptive prescription should be understood by the client.
2. For each client there will be one or more contraceptive methods which appear preferable for initial trial prescription.
3. It should be remembered that in spite of recent publicity and the pressures of advertising, some of the older forms of contraception are still quite reliable and without the risk of some of the more serious side effects. In selected situations some of those methods might be very applicable. Certain stable couples might prefer one or another of those older methods in spite of the inconvenience.

Moreover, the risks of failure are proportionately reduced when two or even three coitus-related modalities are combined: for instance, as an extreme example, diaphragm and jelly, condom and the rhythm system.

4. In deference to her church and because of the possibility of later guilt, the Roman Catholic client should, perhaps, first be urged to try the "rhythm method." Many clients will at least be grateful for the consideration.
5. The possibility of pregnancy, suggested by history, examination or positive agglutination test contraindicates any of the currently available coitus-unrelated contraceptive methods. Rhythm, condom and/or even withdrawal, must be prescribed until the possibility has been excluded. The chance that fetal abnormality might be blamed on intravaginal foam or jelly makes their use during early pregnancy perhaps unwise.
6. For the prospective virginal bride or one who is not a premarital candidate for coitus-independent contraception, the risk of nausea on the honeymoon may make the prescription of oral contraceptives unwise, and the risks of cramps and bleeding may do the same in regard to the IUD. The condom with foam is usually preferable.
7. The patient with menorrhagia or metrorrhagia should not be started on the IUD.
8. The woman who complains of dysmenorrhea should initially try the oral contraceptives unless otherwise contraindicated.
9. The medical contraindications for the "pill" have been outlined. The IUD is generally preferable for the evidently "unreliable" or unintelligent patient if not otherwise contraindicated.
10. For the patient whose reliability is questionable and for whom the IUD is contraindicated, the use of the oral contraceptive is suggested which is packaged with seven or eight placebo pills along with the combined estrogen—progestin pills, so that one pill can be taken daily without interval.
11. In the hope of reducing the risk of subsequent severe disturbances of menstrual rhythm, the patient should be cautioned against discontinuing the pills during a cycle of administration except for very urgent reasons and then only after consultation with the physician. The idea is to disturb endogenous processes as little as possible.
12. Should the patient inadvertently miss a dose or two, one can be "made up" the next morning before noon and the schedule resumed the next night to terminate on the originally determined day. Pills which would otherwise be excess should be discarded.
13. Some other contraceptive—foam, for instance—might well be combined with the IUD during the first month of its use or until the initial check has been made.
14. Whether or not the contraceptive counsellor believes in the significance of the size-wise fit of the vaginal diaphragm, he should consider the adaptability of various types to individual peculiarities of pelvic relaxation, cervical position and retropubic space.
15. One fundamental characteristic to remember is the tremendous individual difference in sex drive, in psychological attitudes and values, in environmental inhibitions.

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Cholecystectomy in a Community Hospital

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In the 101 years since Dr. John Bobbs, of Indianapolis, performed the first recorded operation on the gallbladder in this country, cholecystectomy has become one of the most commonly performed major operations. The overall incidence of gallstones is not known. In a series of 1,057 autopsies of people over 70 years of age, gallstones were found in 29%.¹ Our purpose is to review gallbladder operations in a 600-bed community hospital. A comparison with the work of others might lead to progress in the management of these very common problems.

Material

In 1966 and 1967 a total of 573 operations were performed on the gallbladder. Four hundred eighty-one were for chronic cholecystitis, and 92 were for acute cholecystitis. These diagnoses are based on the pathologist's reports rather than the clinical impression at the time of admission or during the operation.

Females outnumbered males by about 3 to 1, but in acute cholecystitis the ratio was less pronounced, 1.6 to 1.

Ages ranged from 17 to 92 years, with the peak incidence in the sixth decade for chronic cholecystitis and in the seventh decade for acute cholecystitis. Figure 1 shows the age distribution.

Symptoms

In chronic cholecystitis, abdominal pain was the most consistently recorded symptom, 457 of 481 cases (95.5%). In 6 patients the only complaint elicited was intolerance to fatty foods; 3 complained only of vague indigestion, gas, or "heartburn;" 14 (3%) had no complaint at all referable to the biliary system. These latter had gallbladder disease found at previous celiotomy or on routine radiological studies.

Preoperative X-ray Findings

Cholelithiasis was diagnosed by preopera-

tive x-ray studies in 331 cases, including at least 4 on flat film only. However, of these 331 patients, 6 were found at operation to have no stones whatever in the gallbladder or in the common duct. This shows a commendable diagnostic accuracy of 98.2% on the part of the radiologists.

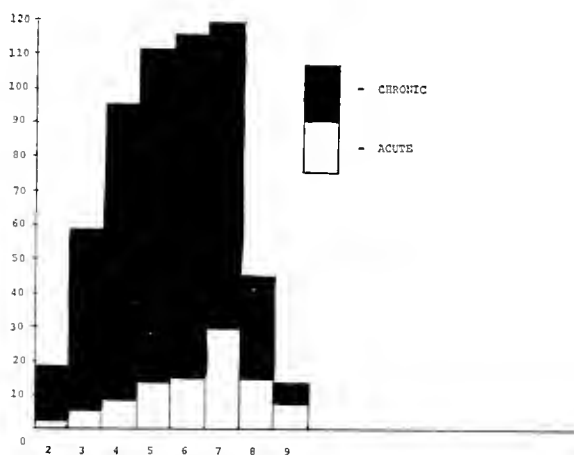


Fig. 1. Age incidence. Figures at left of graph represent numbers of cases; figures at bottom, decade of life.

Type of Operation

Five hundred fifty-seven of the patients underwent *cholecystectomy*, and 67 of these also had *choledochostomy*. Common duct stones were found in 40 of those undergoing exploratory operations (60%), which is a higher yield than that reported by Ferris *et al.*⁵ at the Mayo Clinic, though essentially the same as that reported from other community hospitals.⁷ This figure can be expected to vary with the individual surgeon's view of the indications for common duct exploration.

Fifteen per cent of patients with acute cholecystitis underwent *cholecystostomy*, necessitated by the nature of the operative findings or by the critical state of the patient. This figure is more than the 10% reported by surgeons in England.⁴

Incidental appendectomy was done in 221 cases, including almost one third of those with acute cholecystitis. Other operations for

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Table 1
Operations Performed

	No. Cases
Hiatus hernia repair	12
Gastropexy (for hiatus hernia)	3
Pancreatic cyst	1
Renal cyst	1
Colotomy for polyp	1
Revision of gastrectomy	2
Small bowel resection	1
Colon resection	1

coexisting pathological changes are shown in Table 1.

Operative Cholangiogram

Operative cholangiograms were obtained in 22% of the cases. They were made more often in acute cholecystitis (38%) than in chronic cholecystitis. Of the 127 operative cholangiograms, 7 were technically unsatisfactory; 89 showed a normal extrahepatic biliary tree, but 2 of these patients were found on exploration to have common duct stones. Sixteen cholangiograms showed common duct stones, of which 14 were confirmed by choledochostomy, and 2 were ignored by the surgeon. Nonspecific filling defects were seen in 8 cases, and 6 of these were ignored; of the 2 patients having exploratory operations, one had a stone and one did not. Seven cholangiograms showed no efflux of the dye into the duodenum; in 3 of these cases, exploratory procedures were carried out, 2 yielding common duct stones. A dilated common duct was the only abnormality seen in one cholangiogram, and no stone was found on exploration. Thus, of 32 reported cholangiographic abnormalities, 17 were confirmed, 2 were proven incorrect, and 12 were considered inconsequential by the operating surgeon.

Diagnosis

Acalculous cholecystitis

Forty-four patients were found to have no stone in the gallbladder. The ratio of females to males was 5 to 1. Four patients were jaundiced, 2 of whom were found to have common duct stone, leaving 42 (7.2%) with no evidence of stones anywhere in the extrahepatic biliary tree. Ten of these patients also had cholesterosis of the gallbladder. This is a higher incidence (24%) than was found in the patients who did have

Table 2
Major and Minor Complications in Patients Undergoing Operation for Acute or Chronic Cholecystitis

	No. of Cases
Atelectasis and/or pneumonia	11
Wound infection	9
Seroma or hematoma	8
Dehiscence or evisceration	7
Transient jaundice	4
Uremia (1 fatal)	4
Myocardial infarction (1 fatal)	3
Pancreatitis (2 fatal)	3
Phlebitis	3
Cardiovascular disease	2
Congestive heart failure (fatal)	2
Intestinal obstruction, mechanical	2
Hemorrhage	1
Prolonged bile drainage	1
Diverticulitis	1
Prolapsed hemorrhoid	1
Depression	1
Gastric ulceration	1
Retained common duct stones	1
Sudden death	1
Gram negative septicemia (fatal)	1
Bile peritonitis	0

stones (5.4%). Only one of these patients had no history of abdominal pain referable to the biliary tract, and all but 7 yielded abnormal preoperative cholecystograms. The majority showed poor visualization or non-visualization of the gallbladder. Six patients, as noted above, gave x-ray indication of stones, proved false at operation. It would seem readily apparent that (allowing for an occasional patient to have passed a small stone prior to operation) that the acalculous cholecystitis is a bona fide entity, and that a patient with persistent symptoms and signs referable to the gallbladder should not be denied cholecystectomy solely on the basis of a normal cholecystogram.

Cholesterosis

There were 31 cases of cholesterosis of the gallbladder (5.4%), in none of which were the gallbladders acutely inflamed. Females predominated 9 to 1. Twenty-one also had cholelithiasis. Of the 10 who had no stones, 3 were reported by the pathologist as having no evidence of acute or chronic inflammation.

Jaundice

Forty-four (7.8%) of the patients were clinically jaundiced or had serum bilirubin in excess of 2 mg/100 ml. The incidence of

Table 3

Causes of Death in Chronic Cholecystitis	
Age of Patient (Years)	Cause of Death
60	Pancreatitis and uremia*
64	Pancreatitis and uremia*
73	Myocardial infarction, wound infection, evisceration
87	Uremia
87	Pneumonia, congestive heart failure

*Confirmed at autopsy.

jaundice in chronic cholecystitis (6.7%) rose to 13% in acute cholecystitis. The sex incidence of jaundiced patients was almost equal, 23 female to 21 male. Twenty-nine of the jaundiced patients underwent exploration of the common duct and 19 proved to have common duct stones (65%). One patient's jaundice was due to hepatitis. In the remaining one third of the cases, the jaundice was unexplained, but subsided in all cases.

Morbidity

A total of 66 patients (11.5%) had major or minor complications (Table 2). The rate was 10% for chronic cholecystitis and 18.5% for acute cholecystitis. The postoperative hospital stay averaged 9.6 days and 12.3 days for chronic and acute cholecystitis respectively, but the majority of patients went home at 7 and 10 days respectively.

Mortality

The overall mortality was 1.4%. Operation was more favorable in chronic cholecystitis (1%) than in acute cholecystitis (3.3%). There were no deaths in patients under 60 years of age, either in acute or in chronic cholecystitis. Elective cholecystectomy without regard to age carried a mortality of 0.4%, comparing favorably with previous reports.⁵ The presence of jaundice preoperatively carried a mortality of 11.5%. Causes of death are shown in Table 3.

Summary

Five hundred seventy-three consecutive cases of gallbladder operation are reviewed. Of these, 481 were performed for chronic cholecystitis, and 92 were for acute cholecystitis. The sex and age incidence correlate

Table 4

Cause of Death in Acute Cholecystitis	
Age of Patient (Years)	

64	Probably pulmonary embolus*
75	"Cardiac arrest"
82	Congestive heart failure†

*Hypotension following surgery treated as gram negative septicemia with antibiotics and steroids, not confirmed by cultures. Patient suddenly died on fourth postoperative day.

†Confirmed at autopsy.

with previous reports. The overall mortality was 1.4%; there were no deaths among those under 60 years of age. Mortality in acute cholecystitis treated surgically was 3.25%, and in chronic cholecystitis 1%.

Forty-two patients undergoing operation for suspected cholecystitis had no stones in the gallbladder or common duct. Thirty-one cases of cholesterosis of the gallbladder were found, 10 without stones. Jaundice was present in 44 cases and increased the mortality rate of 11.5%. The average postoperative stay for chronic cholecystitis was 9.6 days, and for acute cholecystitis 12.3 days.

Conclusions

It can be concluded that elective cholecystectomy for chronic gallbladder disease is a safe procedure for patients of young and middle age. Although the risk increases after age 60, it is still relatively low, especially in the absence of complications such as acute inflammation, pancreatitis, jaundice, and common duct stones. Concurrent disease also increases the risk proportionately.

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Subtotal Supraglottic Laryngectomy for Carcinoma of the Larynx

RICHARD S. FELKNER, M.D.

Conservation surgery of the larynx has two goals. The first is the complete eradication of tumor; the second, preservation of the protective, respiratory, and phonatory functions of the larynx.¹ This is not a new concept. The first total laryngectomy, done by Billroth in 1873, was performed on a patient upon whom he had previously performed a laryngofissure. Techniques of laryngofissure and hemilaryngectomy have improved over the years and today are accepted forms of conservation surgery.

Pathology

Observations of the pathologic characteristics of supraglottic carcinoma have stimulated the development of techniques which greatly extend the indications for conservation surgery. In 1938 Baclease² observed that supraglottic carcinoma tends to be limited from inferior extension by the laryngeal ventricle. He wrote: "... they [the tumors] can reach considerable size; but even in those cases where they occupy the entire vestibule and infiltrate the pre-epiglottic space in front and the pharyngo-laryngeal wall behind, they do not pass below the level of the cords." Again, concerning submucosal extension he stated: "... it happens in the depth between the ventricle and the thyroid lamina, stopping in the area of the glottis at the roof of the ventricle."

Alonso³ confirmed this observation through pathologic investigations of his own. In 1947 he developed a technique to remove the supraglottic portion of the larynx by incising along the line of the ventricle. Since then this form of conservation surgery has been modified and practiced in many centers throughout the world.

Clinically there appears to be a limiting boundary to inferior extension of supraglottic carcinomas. Anatomically, a supraglottic compartment in the submucosal tissue has been demonstrated by the injection of dyes.⁴

This space extends from the ventricular band of false cord to the tip of the epiglottis. Laterally, it continues to the aryepiglottic fold, and medially it is separated by a median raphi from an identical compartment of the opposite side. The deep anterior boundary of this compartment is formed medially by the epiglottic cartilage and laterally by the quadrangular ligament.⁵ The inferior extent of this compartment is formed by the insertion of the quadrangular ligament into the ventricular band. Densely compact tissues, such as cartilage or dense fibrous tissue, act as effective barriers to the invasion of tumors. In many supraglottic tumors this submucosal compartment apparently acts as a boundary limiting inferior extension into the laryngeal ventricle.

There are, however, defects in this supraglottic compartment which are frequently used as pathways of direct invasion by tumors of this area.⁶ The fenestrations of the epiglottic cartilage normally contain glands. This soft tissue provides an aggressive tumor easy access into the pre-epiglottic space. Therefore, excision of the supraglottic compartment should include the pre-epiglottic space.

The lymphatic drainage of the supraglottic compartment has also been studied, by injection of dyes.⁷ The lymphatic flow is never inferior but always upwards, and drains through lymphatic trunks which exit through the thyrohyoid membrane. It can be expected that tumors which have not extended inferiorly to the supraglottic compartment will have a lymphatic spread in an upward direction. Therefore, in continuity excision of the lymphatic drainage area of supraglottic carcinomas may be accomplished without damaging glottic and infraglottic structures.

Specific knowledge of the pathologic characteristics of supraglottic carcinoma not only tells us which tissues should be sacrificed and which preserved, but also provides

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insight into the need for elective dissection of the neck. With no palpable nodes in the neck, the incidence of inapparent metastatic lesions has been reported to be as low as 12%.⁸ In such cases, elective dissection of the neck may be unwarranted.

Certain pathologic characteristics of the primary tumor, which may be determined preoperatively, have been shown to correlate with the incidence of metastasis. In a series of 62 supraglottic and infraglottic lesions, the size and histologic differentiation of the tumor were correlated with the incidence of metastasis.⁹ Tumors larger than 2 cm or moderately or poorly differentiated lesions of less than 2 cm had a metastatic rate of 9%. Elective dissection of the neck should, therefore, be dependent on the particular characteristic of the individual lesion.

Preservation of Function

The preservation of physiologic function is the secondary goal of conservation surgery. Since 1823 it has been known that the epiglottis may be removed without apparent ill effect.¹⁰ In supraglottic laryngectomy, however, much more than just the epiglottis is removed. The surgeon should have an understanding of the physiologic functions of the supraglottic structures, which include the false cords and aryepiglottic folds as well as the epiglottis.

The supraglottic structures have two essential functions in deglutition. First, during the second stage of deglutition, the epiglottis forms a hood over the laryngeal vestibule and directs the bolus of food into the lateral gutters. The laryngeal vestibule is further closed by the constriction of the true and false cords. Following completion of deglutition, particles of food are sometimes retained in the pharynx. The epiglottis performs the second function by acting as a shield for the larynx and thus prevents aspiration of retained food during the first inspiratory breath.

Following resection of the supraglottic structures, protection from aspiration during the second stage of deglutition is obtained by three techniques. First, the true cords must be able to form a protective barrier by closing tightly together in the mid-

line. If one arytenoid is resected, as is sometimes necessary, the remaining vocal cord must be sutured to the cricoid cartilage in the midline. This will allow the opposite mobile cord to close the larynx. Second, a cricopharyngeal myotomy must be done to allow the bolus to pass freely and completely into the esophagus. Third, the base of the tongue, which is sometimes partially resected when the tumor extends superiorly, must remain sufficiently intact to be physiologically functional. During deglutition, when the epiglottis is absent, the true cords are elevated and opposed to the base of the tongue. This maneuver adds additional protection. When too much of the mass of the base of the tongue is absent, this protective function is lost.

The second function of the epiglottis is to protect the larynx against aspiration of retained food particles during the first inspiratory breath. Following resection of the epiglottis, this protective function cannot be replaced. This deficiency may be overcome by teaching the patient to swallow in a way that prevents aspiration. Cineradiographic techniques following supraglottic laryngectomy have shown barium to be retained on top of the true cords following completion of deglutition. The patient must be taught to swallow following deep inspiration, so that this retained material may be blown out of the larynx with immediate exhalation.

Criteria for Operation

Location of tumor

The selection of patients for supraglottic laryngectomy is based primarily on the anatomic extent of the tumor. The ability to preserve physiologic function after resection must also be retained.

The inferior margin of the tumor is the most difficult and the most important to define accurately. If supraglottic excision is to be successful, the tumor must not extend below the pedicle, which is approximately 1 cm above the anterior commissure. Extension into the ventricle must be excluded, for this forms the inferior line of resection. Superficial involvement of one arytenoid is acceptable, provided that the vocal cord remains mobile. In this instance, the arytenoid cartilage is resected. Immobility of the vocal

cord is evidence of subglottic extension and is an absolute contraindication to the operation. Anterior extension out of the pre-epiglottic space, manifested usually by invasion of the thyroid cartilage, is also a contraindication.

Variations on the basic supraglottic laryngectomy technique are employed for tumors which extend out of the supraglottic compartment. The criteria for operation are the same as for supraglottic laryngectomy, with additional requirements depending on the direction of the extension. Extensions into the pyriform sinus may be resected along with the supraglottic larynx. The inferior margin of the tumor in the pyriform sinus must not extend inferiorly to the level of the true cords. Extension superiorly into the vallecula and base of the tongue is also resected along with the supraglottic larynx. The primary limitation in this area is the amount of involvement of the base of the tongue. Preservation of physiologic function is the basis for setting criteria. Enough tissue at the base of the tongue must be left to allow apposition of the true cords during deglutition.

Preoperative evaluation

In order for conservation surgery to be successful these criteria for the selection of patients must be strictly observed. Precise anatomic localization of the tumor is difficult. Ordinary methods of laryngeal examination, including palpation, indirect or direct laryngoscopy, and tomography, have not been sufficient in the past. Some authors have recommended laryngofissure for the sole purpose of preoperative evaluation of the extent of the tumor.¹² This procedure is obviously not applicable to a supraglottic lesion, but the point serves to demonstrate the problems that have arisen in preoperative evaluation.

Fortunately better methods for detection are now available. In 1957 Powers¹³ described a simple and reliable contrast technique for x-ray examination of the larynx and pharynx using oily Dionosil. He has termed the technique "laryngogram." The laryngogram was compared with standard methods of clinical evaluation for the ac-

curacy of localization of laryngeal tumors.¹⁴ The comparison was made against the surgical specimen. A series of 99 laryngeal tumors were classified as supraglottic, glottic, infraglottic, and transglottic or pyriform sinus, using clinical and radiographic techniques. The clinical evaluation was correct in 78% of the cases. The laryngogram used without reference to the clinical evaluation was correct in 91% of cases.

In reference specifically to supraglottic tumors, the clinical evaluation was wrong in 7 of 29 cases. In each instance the error occurred in diagnosing true cord involvement when it was not present. In these same 29 cases, only one error was made with the use of the laryngogram.

The blind spot in the clinical evaluation of supraglottic tumors is the laryngeal ventricle. Tumor involvement of the laryngeal ventricle must be excluded before supraglottic laryngectomy can be done. The laryngogram has become an essential adjunct in evaluating cases for conservation surgery.

Surgical Technique

The surgical technique employs a Y incision. The branches of the Y meet the stem at a juncture posterior to the carotid artery. The anterior branch goes across the upper margin of the thyroid cartilage to the opposite side of the neck. The posterior branch goes to the mastoid process, and the stem extends into the supraclavicular fossa. The flaps are elevated and classic radical dissection of the neck is performed, leaving the specimen attached to the thyrohyoid membrane. An incision is made through the strap muscles and perichondrium to the superior margin of the thyroid ala. Perichondrial flaps with the strap muscles attached are elevated inferiorly over the entire side of maximal involvement and a portion of the opposite side. The thyroid ala is then transected with a saw, beginning midway between the notch and the inferior margin. The cut is carried horizontally on the side of maximal involvement to the posterior margin of the thyroid cartilage. The opposite ala is cut obliquely upward to a point anterior to the superior thyroid cornu. The hyoid bone is cut at the lesser cornu on the side of

least involvement. The pharynx is entered at the point farthest from the lesion. If the pyriform sinus is not involved, the pharynx is entered just posterior to the superior cornu. The incision is then carried across the top of the hyoid bone into the vallecula, separating the pre-epiglottic from the base of the tongue.

The lesion may now be exposed by exerting traction upward on the base of the tongue and downward on the epiglottis. The first cut is made through the aryepiglottic fold and false cord to the anterior commissure on the side of least involvement. This incision is connected with that through the hyoid bone and the oblique cut in the thyroid lamina. This allows anterior and lateral traction of the aryepiglottic fold on the side of maximal involvement. The inferior margin of the lesion can now be visualized. The aryepiglottic fold on this side is now incised just anterior to the arytenoid cartilage and the incision is extended forward to the anseparating the pre-epiglottis from the base of the anterior commissure along the laryngeal ventricle. The arytenoid cartilage may be included in the resection on the involved side if necessary. The vocal process is transected and the cut is carried anteriorly along the ventricle. Connection of this incision with that through the thyroid ala completes the resection.

A cricopharyngeal myotomy is done to allow free flow of food into the esophagus. If the arytenoid has to be resected, the remaining vocal process must be sutured to the cricoid cartilage in the midline. A midline structure must be provided for the remaining mobile cord to oppose to prevent aspiration.

The perichondrial flap is then sutured to the base of the tongue. This closure is reinforced by suturing the strap muscles to the base of the tongue superiorly and to the pharyngeal constrictors laterally.

Postoperatively, the patients are maintained on nasogastric tube feedings. On the seventh postoperative day, if the laryngeal airway is adequate, the tracheostomy tube may be removed. The tracheostomy incision should be healed over or sealed before deglutition is attempted. The patient is taught to

swallow at the end of deep inspiration. Exhalation is then able to remove food particles in the pharynx. A thick, gruel-like custard or oatmeal is tolerated best. This type of food holds together in the bolus and does not leave residual particles in the pharynx to be aspirated. Practice and persistence will result in good deglutition. Water and other thin fluids will be the last matter to be swallowed without any aspiration. Some patients may always have a slight cough after drinking water. Aspiration is a problem if an insufficient cricopharyngeal myotomy was done, if the mobile cord does not close to the opposite side or if extensive resection of the base of the tongue has left insufficient tissue for apposition of the true cords.

Results

The results obtained with supraglottic laryngectomy are comparable to those obtained with total laryngectomy. Ogura reported a series of 64 cases of supraglottic carcinoma treated by supraglottic laryngectomy and radical neck dissection.¹⁴ The tumor survival rate at five years was 77%.

In the analysis of failures in this group, recurrence of cancer was invariably in the lymphatic drainage system, either in the lateral part of the neck or as dissiminated spread. There was no recurrence at the primary site of the lesion. Supraglottic laryngectomy, therefore, carries small risk of local persistence of tumor if done on selected patients.

Summary

Careful observation of the pathologic characteristics of supraglottic carcinomas has shown that there is a boundary limiting inferior extension into the laryngeal ventricle. This boundary is apparently created by a submucosal supraglottic compartment which forms fascial and cartilaginous barriers to the extension of cancers outside of the compartment. Inferior extension of supraglottic carcinomas is limited at the level of the false cord. Knowledge of this limitation to inferior extension has led to the development of a technique by which selected carcinomas may be excised without sacrificing supraglottic structures. Phonatory, respiratory, and protective functions of the lary-

nx are thereby preserved. The tumor survival rates obtained with supraglottic laryngectomy are comparable to those obtained with total laryngectomy.

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True Hermaphroditism with Bilateral Ovaries

AGHA B. BABANOURY, M.D.,* AND LAWRENCE K. BOGGS, M.D.

True hermaphroditism is rare, and cases in which bilateral ovaries are present are even rarer. In 1958 Jones and Scott¹ found 60 cases of hermaphroditism recorded in the world literature; included in this number were 11 cases of bilateral ovaries. Other cases have been reported since that time, and a review article published in 1963² stated that more than 114 cases of true hermaphroditism have been reported since 1900. According to Hinman's anatomic classification of these 114 cases,³ only 26 were characterized by bilateral ovaries.

Case Report

The patient came to the Urology Clinic of Charlotte Memorial Hospital at the age of 20, complaining of dysuria. There was no family history of hermaphroditism or other congenital abnormalities, and the patient's siblings (four brothers and four sisters) were all normal. The patient had been brought up as a female and was registered at the clinic as such. She stated that she had

been having normal menstrual periods since the age of 18. Although she never experienced abdominal pain or heaviness of the breasts with menstruation, cyclic swelling of the gonads had been noted. The patient had previously consulted a number of physicians, who gave conflicting opinions about the advisability of surgery.

Physical examination

The physical examination revealed a feminine-looking person who appeared to be of average intelligence. Weight was 101 pounds; height 65 inches. Severe strabismus was present but, unlike some patients with testicular feminization^{4,5} the patient was not color-blind. A scar on the sternum marked the site of open-heart surgery done four years earlier to correct an atrial septal defect (ostium primum in type). Except for the external genitalia, the examination was otherwise normal; the blood pressure was 140 systolic, 85 diastolic. The patient's secondary sex characteristics (breast development and hair distribution) were those of a normal adult female.

Examination of the external genitalia

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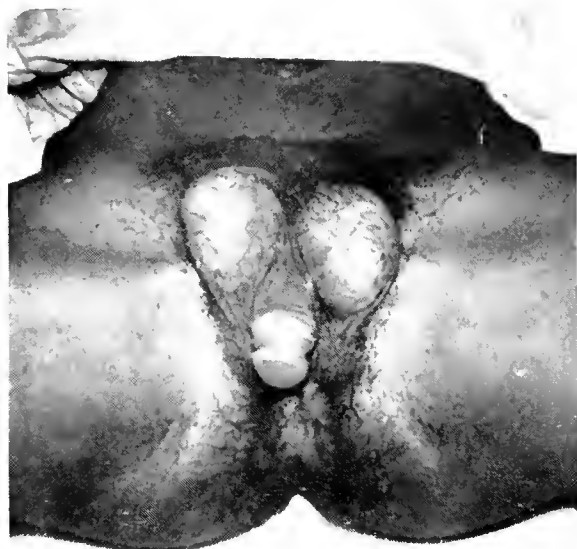


Fig. 1. External genitalia before operation, showing the bifid scrotum and well-developed penis with chordee.

(fig. 1) revealed the clitoris (or phallus) to be 6 cm long and 7 cm in circumference. Chordee was present, and a groove suggesting hypospadias was seen on the ventral side of the phallus. Small openings were present at either end of the groove. Probing proved the distal opening to be blind and shallow; but the proximal orifice, located about 2 inches anterior to the anus, easily permitted the passage of a No. 20 sound. The patient said that urination and menstrual bleeding both occurred through this orifice. The labia majora looked like a bifid scrotum, and a well-developed gonad was present in each side. The left gonad was irregular in shape and some parts were hard and nodular. The left gonad was larger than the right, their measurements being 3.5 by 2 cm and 2.5 by 1.5 cm respectively. There was a left indirect inguinal hernia, and the left gonad could be easily moved up and pushed into the inguinal canal.

Laboratory data

The complete blood count, urinalysis, blood urea nitrogen, fasting blood sugar, serum creatinine, and serum electrolytes were within normal limits. Urine culture revealed no growth. The serologic tests for syphilis and pregnancy tests were negative. Roentgen examinations, including an intravenous pyelo-



Fig. 2. External genitalia three months after surgical reconstruction.

gram, cystogram, chest film, bone survey, and skull film, were all normal. The buccal smear was Barr body or chromatin-positive.⁶

The patient's 24-hour urine specimens contained 9.4 mg of 17-ketosteroids, 6.9 mg of ketogenic steroids, 14.5 mg of pregnanediol, and 14 mcg of estrogens (5 of estrone, 1 of estradiol, and 8 of estriol). Chorionic gonadotropin, by bioassay, was less than 500 international units per liter, and the pituitary gonadotropin ranged from 16 to 50 mouse uterine units per 24 hours.

Surgical procedure

Panendoscopy, performed under general anesthesia through the common vaginal and urethral opening, revealed a rudimentary, irregular cervix at the end of the vagina, a normal bladder, and a well-developed urethra, all of which opened into a common urogenital sinus. (This sinus had not been demonstrated by the cystogram.)

An exploratory laparotomy through a Pfannenstiel incision revealed a small, thumb-shaped uterus to which was attached, on each side, a rudimentary fallopian tube that looked like the fold of the broad ligament. Each fallopian tube continued into the inguinal canal and mixed with the cord structure.

After removal of the uterus, the inguinal

canals were opened and the cord structure and gonads were dissected from the bifid scrotum. Both gonads contained ovarian stroma with mature follicles, as well as some areas that looked like testicular tissue. Since it was impossible to separate the testicle from the ovary, a bilateral gonadectomy was performed. After repair of the left inguinal hernia, the abdominal incision was closed. The phallus was then resected and the external genitalia were reconstructed by a modification of the Young technique.⁷

Results

When the Foley catheter was removed five days after the operation, the patient was able to urinate and had good control of her bladder. The appearance of the external genitalia three months after the operation is shown in figure 2. Periodic vaginal dilations were done postoperatively, with good results. The patient is happy with the surgical outcome and is leading a normal life. As hormone replacement therapy, she takes 2 mg of diethylstilbestrol daily.

Pathological report

The pathological report confirmed the surgical diagnosis of bilateral ovotestes. Some sections of the gonads revealed predominantly ovarian tissue with mature graafian follicles; some showed predominantly testicular tissue; and some were completely mixed. Most sections of the uterus contained coiled-up fallopian tubes and some endometrial structures.

Comment

An interesting feature of this case is the large number of congenital abnormalities present in one patient: hermaphroditism, abnormalities of the external genitalia, inguinal hernia, interatrial septal defect, and strabismus. Apparently these congenital abnormalities are unrelated.

True hermaphroditism is a disturbance which involves the gonads around the tenth week of fetal life, after chromosomal determination.⁸ In this case, the testicular feminization syndrome⁹ could not be excluded on the basis of the clinical features and hormone study, although patients with this syndrome are usually chromatin-negative and most of them do not menstruate. The breast development, however, is typical of testicular feminization. No male pseudoherma-

phrodite has female breasts; true hermaphrodites, after 14 years of age, usually have the breasts development of a normal female. Many true hermaphrodites menstruate if a uterus is present. The results of hormone studies in our patient were almost all in the normal range for both females and males and did not have much diagnostic value.

We regret that chromosomal studies were not done in this case. According to reports in the literature,^{3,10-12} most true hermaphrodites are chromatin-positive and female in karyotype; mosaicism has been reported in some cases. Chromosome studies performed in 16 cases of true hermaphroditism showed a mosaic pattern in 4 cases; the other patients had 46 chromosomes with a female karyotype.

Summary

We have reported a case of true hermaphroditism with bilateral ovotestes and other congenital abnormalities. In this case the gonads were located in the bifid scrotum. A modification of the Young technique was used to reconstruct the external genitalia into satisfactory female organs. The diagnosis of bilateral ovotestes was confirmed by pathological examination.

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SUPPORT YOUR LOCAL LAB

Like all of medicine, the practice of its laboratory aspects is undergoing rapid change, primarily in the field of clinical chemistry, where automation has increased the capacity of laboratories to do large numbers of tests. Automation has had a lesser impact on hematology and clinical microbiology, and urinalysis has not been automated but has benefited by simple methods of doing some of the basic screening studies. Because they offer efficient service when a large volume of specimens is available for analysis, physicians and health planners

think increasingly in terms of centralization of laboratory facilities, often with little thought about the details of such plans, yet the details are of such importance that they must be considered from the outset of such planning.

Laboratory service can be classified in many ways. For the present discussion it might be convenient to consider specimen collection, testing, and reporting. In the hospital, blood collection is usually the responsibility of the laboratory, which may use technical personnel to do venipuncture, or train people to do venipuncture only; in either case, the local facility has to see to it that they do their work properly and are available at all hours every day of the year. When patients are seen in a doctor's office, his staff may draw blood needed for laboratory work, or the patient may be sent to a nearby lab to have the blood drawn. In either collection situation, local people are required to do this part of the work. Testing which is required for the immediate management of the patient is usually carried out in hospital laboratories, occasionally in labs not connected with a hospital but based locally.

What tests fall into the category of being needed for the immediate management of the patient can be a matter of debate. A good starting point for such debate is to say that the physician should have available to him at all times the following: complete blood count; urinalysis; serum levels of urea, glucose, bilirubin (for babies suspected of erythroblastosis), electrolytes, and amylase; blood grouping and cross-matching; initiation of cultures; bleeding and clotting times. Pregnancy tests, prothrombin times, and toxicologic tests are in a borderline area—there are a number of laboratory tests that would be "nice" to have, and for which specimens can be obtained for later confirmatory testing, but which are not really necessary in managing the patient. Finally, there should be a good way of getting the results of the tests to physicians as quickly as possible after the tests are done. Through all of this activity there needs to be as foolproof a system of maintaining the identity of the patient and the test results as possible. This

is a major problem to which many physicians are curiously indifferent, even though lethal errors may result from flaws in the system.

Looking at the basic needs outlined above, it is obvious that a distant central laboratory plays little part in satisfying them. It will be a long time, if ever, before local laboratory facilities can be classed as superfluous. Planners will have to accept the fact that doing a single serum sugar or BUN determination at 3 A.M. Christmas morning will cost more than doing the same test as one of 500 to be started at 9 A.M. on a regular workday, in a central laboratory, without physicians calling every few minutes for the results. The central laboratory may play a role in supervising the work done at the local level, checking the performance of the local laboratory, and helping in the training of people for that laboratory. But it is still the local laboratory which must be responsible for the continuous coverage needed for good medical practice, and getting that kind of coverage in a society trained to live on a five-day, 40-hour or less week is a problem already too familiar to physicians.

The medical profession must play a primary role in setting the objectives for laboratory services in the new health care schemes which are being developed. People who are not physicians, who tend to put laboratory tests in the same category as supplies, will need to be reminded of the several aspects of these essential services which prevent such a comfortable assumption. Millennial thinking about laboratory automation needs revision in light of what is actually possible today, and what is likely to become available in the next five or ten years. There is little reason to think that dependable local laboratory facilities are not going to be needed during this time.

ERNEST B. HOWARD, M.D.

Dr. Ernest B. Howard, who recently served as acting executive vice president of the American Medical Association, has been unanimously appointed by the AMA Board of Trustees as executive vice president of the Association. Dr. Howard has seen long and useful service with the AMA, beginning in 1948 when he was named assistant executive vice president of the organization. He served under General Gorge F. Lull as well as Dr. F. J. L. Blasingame until his resignation in 1968.

The NORTH CAROLINA MEDICAL JOURNAL extends congratulations and felicitations to Dr. Howard and, on behalf of the State Society, pledges its cooperation with his administration within the AMA.

* * *

GREEN APPLE TWO-STEP

To understand the common disorder once known as green apple two-step demands knowledge of the composition of green apples and familiarity with the two-step. The way green apples work their wonders is dealt with in a scholarly and amusing way by Mr. James Breeling of the AMA (JAMA 207: 1524, Feb. 24, 1969); he feels that a surfeit of the little devils is more important than any inherent toxic substances; this fits experience, personal and vicarious. The "two-step" part of the term is bound to mean nothing to a generation whose experience with Terpsichore is closer to the medieval dancing manias than to the genteel round dancing of the first half of the century. The idea is still a good one—the victim of green apple toxicosis could get only two steps from the pot before another attack of tenesmus (called "the appetite of the anus" by John of Arderne) overcomes him. One hesitates to envision what an attack would bring if it complicated a seizure of the "frug" or the "monkey."

Medicines are no doubt useful in their place and, when administered with prudence, they may do much good; but when they are put in place of everything else, or administered at random, which is not seldom the case, they must do mischief.—William Buchan: Domestic Medicine, or a Treatise on the Prevention and Cure of Diseases by Regimen and Simple Medicines, etc., Philadelphia, Richard Folwell, 1799, p. 107.

President's Page

YOUR OFFICE ASSISTANTS

The subject of Health Manpower is a live one now and continues to be the focus of attention by groups of physicians, educators, planners, and many other persons meeting together in national and regional and state gatherings. We are at the point where the demand for health service is beginning to exceed our ability to deliver it. Philip Lesly says, "We are living in what has been called the Age of Rising Aspirations, but can more accurately be called the Age of Unreasonable Expectations." In a transition period of profound social change which affects every segment of society, Mr. Lesly continues:

Marvelous changes have come so fast that many people, especially those who didn't experience the trials of adult life before 1946, now feel "miracles" can be had just by **wanting** them **belligerently** enough.

Humanity, which often passed generations hoping for single signs of advancement or alleviation of evils, now clamors for **immediate** solutions to **massive** problems.

Our progress has heightened the great American illusion of perfectibility; many people insist that what should be, must be.

The result: Even though we are producing new doctors at a rate faster than the population increase, we are not meeting all the *demands* of today's affluent and ghetto society. The combination of actual health needs and cascading health demands is creating pressures on the health profession which have never been anticipated nor experienced before. Federal legislation has suddenly added greatly to these pressures.

Thus the providers of health services are faced with the immediate necessity of greatly increasing our productivity. Of course this involves producing more physicians, more nurses, more medical assistants, and all allied health personnel. There are new programs and schools for training "allied health professionals." "Physicians' assistants" are being trained at Duke Medical Center, Bowman Gray Medical Center, and several other institutions. The output is still meager.

In considering all aspects of this problem, it appears that the chief hope of im-

provement in the immediate future depends upon increasing the number of physicians' helpers of all kinds—helpers who, under his supervision, can take over some of the time-consuming chores he has done by habit and thus increase his productivity.

All business aspects of practice such as payrolls and associated taxes, insurance, supplies, third party reports, and the like, are increasing rapidly.

We depend more on the medical assistants in our offices than on any other group. We couldn't operate without them. We could not provide the amount and quality of care now being rendered without them. We can't hope to meet the increasing demand of society without *more* of them.

We've been training our own for years. Now, in addition to this on-job training, the medical assistants have an excellent education and certification program of their own, made available through their state chapter, the North Carolina Association of Medical Assistants, and their state chapter, the North Carolina Association of Medical Assistants, and their national organization, the American Association of Medical Assistants. These organizations have the official approval of the Medical Society of the State of North Carolina and of the American Medical Association.

In my opinion, these "Girl Fridays" represent the most valuable reservoir in the health manpower situation as it relates to our office practice. Let's encourage them in their organizational programs and meetings and give them the added support they so richly deserve.

The North Carolina Association of Medical Assistants recently held its annual convention in Salisbury. The two-day program was filled with practical solutions to every day office procedures as well as with appropriate inspirational and organizational subjects. If your office was not represented there, you and your patients are the losers.

I commend this very fine organization and its program based on "Excellence Through

Education." Miss Anne McClure, employed by Dr. Stanley S. Burns of Charlotte, is their new president.

Other officers include: Miss Brenda Curlee, president-elect, employed by Dr. Edward B. McKenzie of Salisbury; Mrs. Elizabeth H. Michaels, treasurer, employed by Dr. Beverly D. Hairfield of Morganton; Mrs. Sue C. Baggs, vice president, employed by Dr. Lewis E. Curlee of Concord; and Miss Joan Michaels, secretary, employed by the North Carolina Regional Medical Program, Charlotte.

Code of Ethics

PREAMBLE: These principles are intended to aid medical assistants individually and collectively in maintaining a high standard of ethical conduct, at all times, whether in the office or in public.

The medical assistant, at all times, shall render to her physician or hospital employer and his patients service to the best of her ability. She shall not at any time reveal any confidences gained from any source regarding patients, physicians, or any other members of the medical profession. She shall constantly strive to improve her knowledge and abilities so that she may better serve her employer and the patients in his care.

The medical assistant shall uphold the dignity and honor of the medical profession and shall accept the self-imposed disciplines thereof. She shall conduct herself at all times in a manner worthy of her responsible position, and shall at no time, through thoughtless word or deed, bring legal or ethical reproach upon her employer, herself, or the profession which she serves.

* * *

Recommendations

1. Please, if at least one of your office staff is not a member of the association, arrange for one to become a member. Write to Miss Joan C. Michaels, 1021 Ardsley Road, Apartment 4, Charlotte, N. C. 28207

2. Please, if one of your staff is a member, sit down and discuss with her how you can help in recruiting more members.

We are the people for whom these belles toil, and they deserve our enthusiastic support.

DAVID GOE WELTON, M.D.

Correspondence

To the Editor:

In view of the current controversy over attempts to alter the American diet, I would like to point out that this is not so current as we might think. Please note the following quotation: "They keep ordering us not merely a new diet, but the very opposite to that we are accustomed to: a change that not even a healthy man can suffer . . . If they do no other good they do this at least, that they prepare their patients betimes for death, by gradually undermining and cutting off their enjoyment of life." Our thanks to Montaigne for this.

Norma H. Lofland
(Mrs. Hugh B. Lofland)

Bulletin Board

COMING MEETINGS

Workshop on Modern Office Contraception for the Family Physician—North Carolina Memorial Hospital, Chapel Hill, June 6.

Rural Health Conference, sponsored by the Committee on Community Health, Medical Society of the State of North Carolina—Lambeth Inn, Lake Junaluska, June 12.

Seaboard Medical Association, Annual Convention—The Carolinian, Nags Head, June 19.

NEW MEMBERS OF THE STATE SOCIETY

John Harvard Herring, M.D., OB-GYN, 234 Yadkin St., Albemarle 28001
Byron David Casteel, M.D., GP, 740 E. Smallwood Drive, Raleigh 27605
Walter Ray Samuels, M.D., OB-GYN, 105 Cedar Lane, Charlotte 28211
Earl Sunderhaus, M.D., PD, Doctors Park, Asheville 28801
Thomas E. Hardin, Jr., Doctors Park, Asheville 28801
Kenneth Hutton LeFever, 3502 Wedgewood Drive, New Bern 28560
James E. Collins, P, 822 N. Elm Street, Greensboro 27401
Charles Capers Smith, M.D., H, Broughton Hospital, Morganton 28655
David Robert Williams, Pd, 400 Randolph St., Suite 103, Thomasville 27360
Jack A. Koontz, M.D., GP, 201 E. State Street, Black Mountain 28711
Joseph Luther Sampson, S, 120 River Drive, Southport 28461
W. M. Watterson, M.D., I, 1600 N. Main St., Waynesville 28786
James Edward Hunter, M.D., I, 106 Arthur Drive, Thomasville 27360

Carl Julien Hiller, S. 405 Metcalf St., New Bern 28560
 George W. Doss, P. Highland Hospital, Asheville 28331
 George W. Freeman, I. Midway Clinic, Canton 28716
 James D. Mallory, M.D., P. Highland Hospital, Asheville 28801
 William C. Miller, Jr., M.D., R. 2708 Bennington Road, Fayetteville
 James Hutton McCutchan, I. N. C. Memorial Hospital, Chapel Hill 27514
 Charles Fulton Martin, 1350 S. Kings Drive, Charlotte 28207
 Henry L. Kiser, Jr., Pd. 711 Hermitage Road, Burlington 27215
 Blucher E. Taylor, M.D., OB-GYN. 3020 Mapiewood Ave., Winston-Salem 27103
 Andrew William Walker, M.D., S., 1330 Scott Ave., Charlotte 28240
 Eugene F. Van Epps, M.D., R. 2617 McDowell Rd., Durham 27705
 James Archibald Campbell, M.D., 1320 Scott Ave., Charlotte 28204
 Jeanne Andrew Anderson, M.D., Anes. No. 73 Willow Terrace Apts, Chapel Hill 27514
 William Paul Biggers, M.D., Otol, 1543 Fountain Ridge Road, Chapel Hill 27514
 William Cronin Trier, M.D., Pl. Dept. of Surgery, UNC, Chapel Hill 27514
 William Amos Morrison, M.D., Anes, 702 Emory Dr., Chapel Hill 27514
 Rita Anne Siler, M.D., 615 College St., Jacksonville 28540
 Charles Edward Smith, M.D., P. Lake Shore and Rolling Road, Chapel Hill 27514
 David Maurice Hurst, M.D., R. 127 Lakeview Circle, Thomasville 27360
 Davidson Robertson Beckham, M.D., Anes, 2404 Colgate Dr., Fayetteville 28303
 Richard Robert Henderson, M.D., I. 1610 Vaughn Rd., Burlington 27215
 Cesar Guajardo, M. D., P. 600-1 LaSalle St., Apt. G, Durham 27701
 Romeo H. Lewis, M.D., GP, 627 Lisbon St., Clinton 38326
 Benjamin Bethes Ferdon, M.D., I. 119 Boylan Ave., Raleigh 27603
 John Cathcart Evans, M.D., R. Piney Mountain Rd., Rt. 2, Chapel Hill 27514
 William Hartman Shapiro, M.D., Rutherford Hospital, Rutherfordton 28139
 Emil Charles Beyre, M.D., Landis End Rd., Spooners Creek, Morehead City 28557
 Fred D. Summers, M.D., Dept. of OB-GYN, UNC, Chapel Hill 27514
 C. G. Goswick, M.D., GP, 726 5th Ave. West, Hendersonville 28739
 Ruth Reuben Burroughs, M. D. Pd. 4343 Lassiter Mill Rd., Raleigh 28206
 Walter Phelps Scott, M.D., R. 301 Hermitage Rd., Charlotte 28207
 Thomas Haislip, M.D., P. 5201 Rembert Dr., Raleigh 28209
 David Harrison Tate, M.D., Pd. Moses Cone Hospital, Greensboro 27401

Martha K. Sharpless, M.D., Pd. Moses Cone Hospital, Greensboro 27401
 Charles Newton James, M.D., GP, Doctors Building, Cliffside 28024

RURAL HEALTH CONFERENCE

Home Health Care programs and Child Health programs will be featured at a Regional Rural Health Conference to be held June 12 at the Lambuth Inn, Lake Junaluska, according to Dr. Hugh A. Matthews of Canton, North Carolina, Director of Health Affairs, Western Carolina University, Cullowhee, who will preside.

The Conference is sponsored by the Committee on Community Health (Rural and Urban) of the Medical Society of the State of North Carolina. Dr. Edward L. Boyette of Chiquapin is chairman of the sponsoring committee of the Society.

The one-day meeting is open to the public, and it is anticipated that several hundred farm, community and medical leaders will participate.

Child Health programs in Haywood, Madison, and Cherokee counties will be described by Dr. Doris B. Hammett of Waynesville, Dr. Barbara Wood of Marshall, and Dr. Will Light Nash of Cherokee.

Other program topics include a discussion of How to Establish a Home Health Care Program by Dr. Wyan W. Washburn of Boiling Springs, former chairman of the Council on Rural Health of the American Medical Association; An Example of An Ongoing Home Care Program by Sister Mary Jogues of Hayesville; and a Progress Report on North Carolina's Home Health Care Program by Dr. Isa Grant of the North Carolina State Board of Health, Raleigh.

Recognition of 1968 4-H Health King and Queen winners will be recognized, along with their families, by Dr. Boyette and Earl H. Smith of Hendersonville. A movie on home health care programs entitled "Almost a Miracle" will round out the program.

SEABOARD MEDICAL ASSOCIATION

The 74th annual convention of the Seaboard Medical Association will open June 19 at the Carolinian Hotel, Nags Head. Physicians throughout eastern North Carolina and the Atlantic coastline of Virginia will attend.

The scientific program, approved for credit by the American Academy of General Practice, begins Friday morning, June 20. Officers of the Association are president, Robert B. Gahagan, M.D., of Norfolk, Va.; immediate past-president, T. P. Brinn, M.D., of Hertford; and president-elect, Henry L. Stephenson, Jr., M.D., Washington, N. C.

App earing on the program from North Carolina will be Clayton E. Wheeler, Jr., M.D., UNC School of Medicine; Richard T. Myers, M.D., Bowman Gray School of Medicine of Wake Forest University; James H. Scatliff, M.D., UNC School of Medicine; R. Wayne Rundles, M.D., Duke University Medical Center.

The banquet speaker on Saturday night, June 21, will be the Honorable G. William Whitehurst of Richmond, congressman from the Second District, Commonwealth of Virginia

NORTH CAROLINA HEART ASSOCIATION

The scientific program of the twentieth annual meeting of the North Carolina Heart Association has been released. To be held at the White House Inn in Charlotte on May 29, the sessions will feature the following:

General Session beginning at 9 a.m.—Dr. James Warren, chairman of the Department of Medicine, Ohio State University, speaker.

Three simultaneous scientific sessions from 10 a.m. to 12 noon:

"Acute Care Myocardial Infarction"—Dr. James J. Morris, Duke, moderator; Drs. E. Harvey Estes, Duke; Thomas Killip III, New York; Thomas E. Hair, Columbia, S. C.

"Peripheral Vascular Disease"—Dr. George Johnson, UNC, moderator; Drs. Harold Green, Bowman Gray School of Medicine; W. Gerald Austen, Boston; Edward Hipp, Charlotte; Frank Clippinger, Duke.

"Management of Hypertension"—Dr. James W. Woods, UNC, moderator; Drs. Robert Ney, UNC; and John Oates, Nashville.

There will be two simultaneous afternoon sessions:

"Long-Term Management Myocardial Infarction"—Dr. James A. McFarland of Duke, moderator; Drs. James Warren, Duke; Robert Klein, Duke; and Nanette K. Wenger, Atlanta.

"Aortic Aneurysms"—Dr. Francis Robicsek, Charlotte, moderator; Drs. W. Gerald Austen, Boston; William D. Logan, Jr., Atlanta; and Donald M. Mullen, Durham.

The program is acceptable for five accredited hours by the American Academy of General Practice.

NEWS NOTES FROM THE DUKE UNIVERSITY SCHOOL OF MEDICINE

Dr. Nicholas M. Kredich, assistant professor of medicine at the Duke University Medical Center, has been named a Markle Scholar, one of the most prized appointments in academic medicine.

He was one of 25 young medical scientists, all faculty members of medical schools in the United States and Canada, to be selected by the John and Mary R. Markle Foundation of New York. The appointments begin July 1.

The sum of \$30,000 will be paid at the rate of \$6,000 for five years, to the medical school at which each of the scholars teaches or conducts research. The money is used to supplement salary, aid research, or otherwise assist in the development of the scholar as a teacher, investigator, or administrator.

Kredich, a native of Chicago, earned his bachelor's degree at Duke, his master's in chemistry at the University of Michigan, and his M.D. at Michigan in 1962. He served his internship and residency at Duke and since 1964 has been involved in research.

* * *

Jeff H. Steinert, director of management services for the Greenville (S. C.) Hospital System, has been named an assistant vice president for business and finance at Duke University.

In announcing the appointment, Charles B. Huestis, vice president for business and finance, said that Steinert's area of responsibility would cover the business and finance functions of the Duke Medical Center.

He will report both to Huestis and to Dr. Stuart M. Sessoms, director of the Duke Hospital.

Steinert worked from 1954-63 as controller and assistant director at the Greenville General Hospital, one of the five institutions making up the Greenville Hospital System. He became director of management services for the system in 1963.

Prior to going to Greenville, Steinert worked in accounting and office management for hospitals and private industry in Gouverneur, N. Y., and New York City.

* * *

A former administrator of the Durham City Housing Authority has been appointed administrative assistant to the associate provost for medical affairs at Duke University.

James Leonard Bennett, Jr., who served as director 1967, assumed his position earlier this month. In his new job, Bennett will aid in coordination of the varied activities in the office of Associate Provost William G. Anlyan.

* * *

More than 1,000 children under the age of five died because of accidental poisoning in the U. S. last year, many of them from ingesting common household products. Many thousands more were injured seriously.

Dr. Jay M. Arena, president of the American Association of Poison Control Centers, noted these gruesome statistics in a report issued recently in connection with observance of Poison Prevention Week.

Dr. Arena, professor of pediatrics and director of the Poison Control Center at Duke University Medical Center, said that poisoning is the most common medical emergency among young children today.

NEWS NOTES FROM THE BOWMAN GRAY SCHOOL OF MEDICINE OF WAKE FOREST UNIVERSITY

Dr. James T. Harrill, professor and director of the section of otolaryngology at the Bowman Gray School of Medicine, has been elected president-elect of the Society of University Otolaryngologists.

Dr. Harrill, who has served as treasurer of the society since it was organized in 1964, will be installed as president in March, 1970. He will succeed Dr. Francis A. Sooy, professor of otolaryngology at the University of California School of Medicine in San Francisco.

The Society of University Otolaryngologists was established for the benefit of academic otolaryngologists who are engaged in teaching and research as well as in clinical practice.

Dr. Harrill, a past president of the North Carolina Eye, Ear Nose and Throat Society, also has served as vice president of the American Broncho-Esophagological Association.

Dr. Richard C. Proctor, professor and chairman of the Department of Psychiatry, recently was elected

to a second term as secretary-treasurer of the Southeastern Psychiatric Association.

A past president of the Southern Psychiatric Association, he is president-elect of the North Carolina Neuro-Psychiatric Association. He is a former treasurer of the American College of Psychiatrists.

* * *

Dr. James F. Toole, professor and chairman of the Department of Neurology, was a visiting professor at Mayo Clinic and the University of Minnesota March 11-14. He lectured on "The Carotid Compression Test" and "The Neurologist and the Diagnosis of Death."

* * *

Dr. R. Winston Roberts, professor of ophthalmology, has been elected first vice president of the North Carolina Society for the Prevention of Blindness. The election took place at the society's annual meeting in Greensboro.

A former vice president of the North Carolina Eye, Ear, Nose and Throat Society, Dr. Roberts has served as secretary of the Association for Research in Ophthalmology. He is the recipient of the 1965 Honor Award of the American Academy of Ophthalmology and Otolaryngology.

* * *

Robert L. Shuman of Clarendon Hills, Ill., a third-year medical student at the Bowman Gray School of Medicine, has been elected president of the Bowman Gray Student Medical Society, a chapter of the Student American Medical Association.

He succeeds R. McPhail Herring of Clinton.

The primary aim of the society is to prepare medical students to meet the moral, social and ethical obligations of medicine.

Other newly-elected officers are William L. Ramseur Jr. of Kings Mountain, vice president; William T. Grimes Jr. of Rocky Mount, secretary; and Ben K. Davis of Hazelwood, treasurer.

* * *

Dr. I. Meschan, professor and chairman of the Department of Radiology, has been appointed chairman of the Committee on Regionalization of the Commission on Nuclear Medicine for the American College of Radiology. He also was appointed chairman of the Radiology Research Committee for the Veterans Administration Central Office, Washington, D. C.

* * *

Dr. Quentin N. Myrvik, professor and chairman of the Department of Microbiology, recently was elected president of the newly-organized Northwestern Tuberculosis and Respiratory Disease Association.

The organization includes nine northwestern North Carolina counties—Forsyth, Alleghany, Ashe, Davidson, Davie, Surry, Watauga, Wilkes, Yadkin.

* * *

Dr. Clark E. Vincent, professor of sociology and director of the Bowman Gray School of Medicine's Behavioral Sciences Center, has been appointed consultant to the Agency for International Development, an agency of the Department of State.

Members of the senior class of the Bowman Gray School of Medicine will take their internship training at 32 hospitals in 19 states. The appointments will become effective July 1.

Appointments are made through the National Intern Matching Program. Seventy-eight per cent of the class received first-choice appointments.

* * *

Dr. Frank C. Greiss Jr., associate professor of obstetrics and gynecology, presented a paper on "Effect of Ovarian Hormones on the Uterine Vascular Bed" at a meeting of the Society for Gynecologic Investigation March 21 in Denver, Colo.

* * *

Dr. Richard Janeway, assistant professor of neurology, participated in a Neural Sciences Seminar March 14 at the University of Alabama Medical Center in Birmingham, Ala. He presented a paper on "Use of the Gamma Camera in the Evaluation of Patients with Cerebral Vascular and Neoplastic Disorders."

* * *

Dr. George S. Malindzak, associate professor of physiology, participated in a biomedical engineering program March 6-7 at the Drexel Institute of Technology, Philadelphia, where he presented a paper on "Arterial Pulse Wave Propagation."

* * *

Dr. William M. McKinney, assistant professor of neurology, participated in a postgraduate course on "Diagnostic Ultrasound" March 10-12 at the University of Colorado Medical Center, Denver, Colo. He presented papers on "Diagnostic Application of Ultrasound for Echoencephalography" and "Study of Pulsations by Ultrasound."

* * *

Dr. Richard T. Myers, professor and chairman of the Department of Surgery, was a speaker for the 22nd annual medical symposium of the Greensboro Academy of Medicine March 27 in Greensboro. His topic was "Surgical Management of Peptic Ulcer—Current Status."

* * *

Dr. Clark E. Vincent, professor of sociology, participated in the Lederle Laboratories Symposium March 11-13 in Rockford, Ill. He spoke on "How to Handle Premarital and Extramarital Pregnancies" and "The Physician as Consultant in Marital and Sexual Health."

NORTH CAROLINA HEART ASSOCIATION

Six North Carolina scientists have been awarded fellowships by the American Heart Association as part of a national research program to be supported by \$12 million during 1969-1970 in the continuing campaign against heart and blood vessel diseases. Dr. James A. McFarland, president of the North Carolina Heart Association, announced recently. Investigators named from the Tar Heel State were: Dr. Charles W. Gottschalk, University of North Carolina; Dr. Peter Halloway, Duke; Dr. Frans Jobsis, Duke; Dr. Klaus Brendel, Duke; Dr. James R. Clapp, Duke; and Dr. Robert F. Bond, Bowman Gray.



Let's be specific about Campbell's Soups... and *reducing diets*

There are more than 30 million people in America who are overweight. During the next year, you probably will see more than 1,000 of them in your own practice.

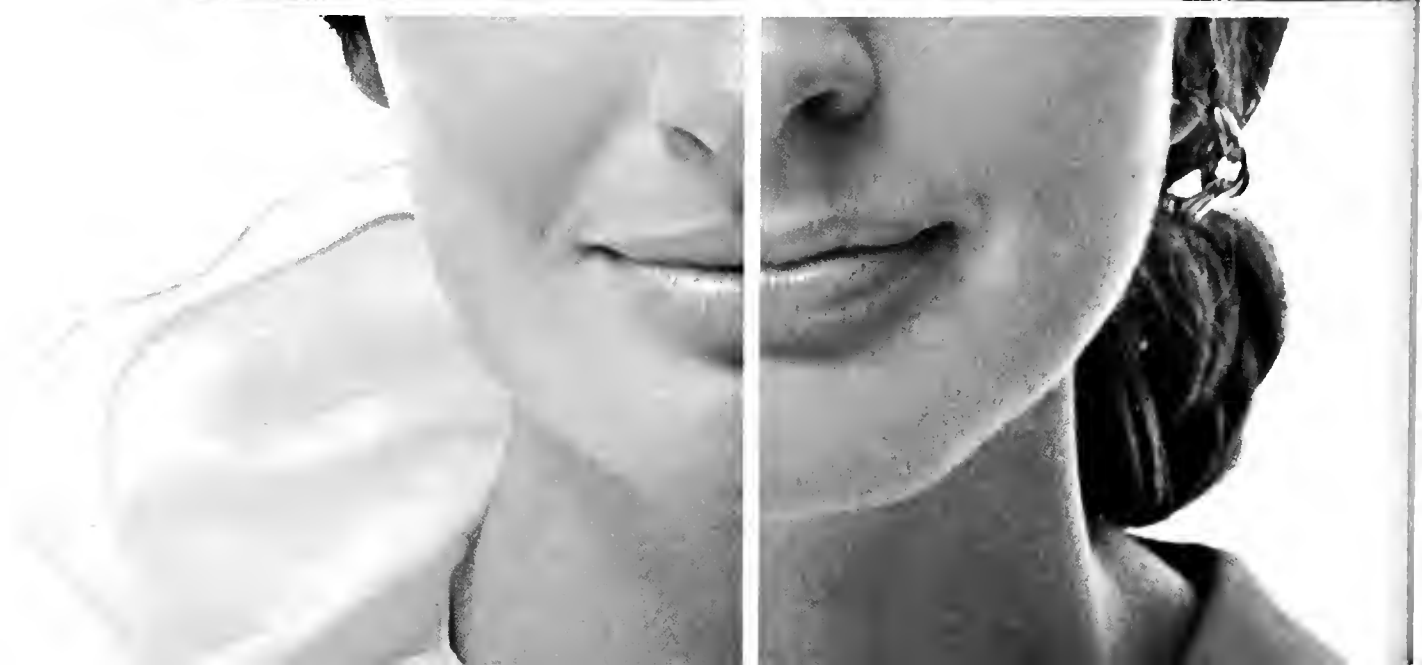
One good way to help these patients is to give them a reducing diet based on ordinary eating patterns.

Campbell has prepared a sensible plan for weight control based on ordinary eating patterns. The plan consists of a patient instruction booklet and a set of menus which provide approximately 1,400 calories daily. The menus are balanced to provide the minimum daily requirements of nutrients.

To obtain a supply for your office write to:
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and no other oral contraceptive is quite like Ovulen-21®

Each tablet contains ethynodiol diacetate 1 mg., mestranol 0.1 mg.



The progestin is distinctive, and for some women this may mean a different clinical response. The Compack® tablet dispenser is distinctive; its functional simplicity makes it virtually patient-proof. The acceptance of Ovulen-21 is distinctive... together with Ovulen®, it is more often prescribed than any other individual contraceptive product currently available.

Indication—Oral contraception.

Contraindications—Thrombophlebitis, thromboembolic disorders, cerebral apoplexy or a past history of these conditions, markedly impaired liver function, known or suspected carcinoma of the breast, known or suspected estrogen-dependent neoplasia, undiagnosed abnormal genital bleeding.

Warnings—Watch for the earliest manifestations of thrombotic disorders (thrombophlebitis, cerebrovascular disorders, pulmonary embolism, retinal thrombosis); if present or suspected discontinue the drug immediately.

British studies reported in April 1968^{1,2} estimate there is a seven-to tenfold increase in mortality and morbidity due to thromboembolic diseases in women taking oral contraceptives. In these controlled retrospective studies, involving 36 reported deaths and 58 hospitalizations due to "idiopathic" thromboembolism, statistical evaluation indicated that the differences observed between users and non-users were highly significant. The conclusions reached in the studies are summarized in the table below:

Comparison of Mortality and Hospitalization Rates Due to Thromboembolic Disease in Users and Non-Users of Oral Contraceptives in Britain.

Category	Mortality Rates		Hospitalization Rates (Morbidity)
	Age 20-34	Age 35-44	Age 20-44
Users of Oral Contraceptives	1.5/100,000	3.9/100,000	47/100,000
Non-Users	0.2/100,000	0.5/100,000	5/100,000

No comparable studies are yet available in the United States. The British data, especially as they indicate the magnitude of the increased risk to the individual patient, cannot be applied directly to women in other countries in which the incidences of spontaneously occurring thromboembolic disease may differ.

Discontinue medication pending examination if there is sudden partial or complete loss of vision, or sudden onset of proptosis, diplopia or migraine. Withdraw medication if papilledema or retinal vascular lesions are found.

Since the safety of Ovulen in pregnancy has not been demonstrated, it is recommended that pregnancy be ruled out for any patient who has missed two consecutive periods before continuing the contraceptive regimen. If the patient has not adhered to the prescribed schedule the possibility of pregnancy should be considered at the first missed period.

A small fraction of the hormone agents in oral contraceptives has been identified in the milk of mothers receiving these drugs. The long-range effect to the nursing infant cannot be determined at this time.

Precautions—Pretreatment physical examination should include special reference to the breasts and pelvic organs, and a Papanicolaou smear.

Endocrine and possibly liver function tests may be affected by Ovulen. Therefore, it is recommended that such tests if abnormal be repeated after the drug has been withdrawn for two months.

Pre-existing uterine fibromyomas may increase in size under the influence of progestogen-estrogen preparations.

Because these agents may cause some degree of fluid retention, conditions which might be influenced by this factor, such as epilepsy,

migraine, asthma, cardiac or renal dysfunction, require careful observation.

In breakthrough bleeding, and all irregular vaginal bleeding, consider nonfunctional causes. Adequate diagnostic measures are indicated in undiagnosed vaginal bleeding.

Carefully observe patients with a history of psychic depression and discontinue the drug if severe depression recurs.

Any possible influence of prolonged Ovulen therapy on pituitary, ovarian, adrenal, hepatic or uterine function awaits further study.

A decrease in glucose tolerance has occurred in a significant percentage of patients on oral contraceptives. The mechanism of this decrease is obscure. For this reason, diabetic patients should be observed carefully while receiving Ovulen.

Because of the effects of estrogens on epiphyseal closure Ovulen should be used judiciously in young patients in whom bone growth is not complete.

The age of the patient constitutes no absolute limiting factor, although Ovulen therapy may mask the onset of the climacteric.

The pathologist should be informed of Ovulen therapy when relevant specimens are submitted.

Adverse Reactions—A statistically significant association has been shown between use of oral contraceptives and the following serious adverse reactions: thrombophlebitis, pulmonary embolism.

Although available evidence is suggestive of an association, such a relationship has been neither confirmed nor refuted for the following serious adverse reactions: cerebrovascular accidents, neuro-ocular lesions, e.g., retinal thrombosis and optic neuritis.

The following adverse reactions are known to occur in patients receiving oral contraceptives: nausea, vomiting, gastrointestinal symptoms (such as abdominal cramps and bloating), breakthrough bleeding, spotting, change in menstrual flow, amenorrhea during and after treatment, edema, chloasma or melasma, breast changes (tenderness, enlargement, secretion), change in weight, changes in cervical erosion and cervical secretions, suppression of lactation when given immediately post partum, cholestatic jaundice, migraine, allergic rash, rise in blood pressure in susceptible individuals, mental depression.

Although the following adverse reactions have been reported in users of oral contraceptives, an association has been neither confirmed nor refuted: anovulation post treatment, premenstrual-like syndrome, changes in libido, changes in appetite, cystitis-like syndrome, headache, nervousness, dizziness, fatigue, backache, hirsutism, loss of scalp hair, erythema multiforme and nodosum, hemorrhagic eruption, itching.

The following laboratory results may be altered by oral contraceptives: hepatic function: increased sulfobromophthalein and other tests; coagulation tests: increase in prothrombin, Factors VII, VIII, IX and X; thyroid function: increase in PBI and butanol extractable protein bound iodine, and decrease in T₃ uptake values; metyrapone test; pregnanediol determination.

References: 1. Inman, W. H. W., and Vessey, M. P.: *Brit. Med. J.* 2:193-199 (April 27) 1968. 2. Vessey, M. P., and Doll, R.: *Brit. Med. J.* 2:199-205 (April 27) 1968.

Before prescribing see Detailed Product Information.

Where "The Pill" Began
G. D. SEARLE & CO., P. O. Box 5110, Chicago, Illinois 60680

In the complex picture
of moderate to severe anxiety...



there is a **new** reason
for prescribing **Mellaril**
(Thioridazine HCl)

**effectiveness in
mixed anxiety-depression**

Long recognized for its usefulness in the treatment of moderate to severe anxiety, Mellaril is now also known to be effective against mixed anxiety-depression.

Often the symptoms of anxiety states are difficult to sort out—even with the most careful probing. The patient may manifest symptoms of agitation, restlessness, insomnia, somatic complaints. But what of the depression that may be mixed in the total picture? It is reassuring to know that Mellaril may be prescribed—with strong possibilities of success—when there is anxiety alone or a mixture of anxiety and depression.

Before prescribing or administering, see Sandoz literature for full product information, including adverse reactions reported with phenothiazines. The following is a brief precautionary statement.

Contraindications: Severe central nervous system depression, comatose states from any cause, hypertensive or hypotensive heart disease of extreme degree.

Warnings: Administer cautiously to patients who have previously exhibited a hypersensitivity reaction (e.g., blood dyscrasias, jaundice) to phenothiazines. Phenothiazines are capable of potentiating central nervous system depressants (e.g., anesthetics, opiates, alcohol, etc.) as well as atropine and phosphorus insecticides. During pregnancy, administer only when necessary.

Precautions: There have been infrequent reports of leukopenia and/or agranulocytosis and convulsive seizures. In epileptic patients, anticonvulsant medication should also be maintained. Pigmentary retinopathy may be avoided by remaining within the recommended limits of dosage. Administer cautiously to patients participating in activities requiring complete mental alertness (e.g., driving). Orthostatic hypotension is more common in females than in males. Do not use epinephrine in treating drug-induced hypotension. Daily doses in excess of 300 mg. should be used only in severe neuropsychiatric conditions.

Adverse Reactions: *Central Nervous System*—Drowsiness, especially with large doses, early in treatment; infrequently, pseudoparkinsonism and other extrapyramidal symptoms; nocturnal confusion, hyperactivity, lethargy, psychotic reactions, restlessness, and headache. *Autonomic Nervous System*—Dryness of mouth, blurred vision, constipation, nausea, vomiting, diarrhea, nasal stuffiness, and pallor. *Endocrine System*—Galactorrhea, breast engorgement, amenorrhea, inhibition of ejaculation, and peripheral edema. *Skin*—Dermatitis and skin eruptions of the urticarial type, photosensitivity. *Cardiovascular System*—Changes in the terminal portion of the electrocardiogram have been observed in some patients receiving the phenothiazine tranquilizers, including Mellaril (thioridazine hydrochloride). While there is no evidence at present that these changes are in any way precursors of any significant disturbance of cardiac rhythm, several sudden and unexpected deaths apparently due to cardiac arrest have occurred in patients previously showing electrocardiographic changes. The use of periodic electrocardiograms has been proposed but would appear to be of questionable value as a predictive device. *Other*—A single case described as parotid swelling.

Mellaril®
(Thioridazine HCl)
25 mg. t.i.d.

**for moderate to severe anxiety
and mixed anxiety-depression**



SANDOZ SANDOZ PHARMACEUTICALS, HANOVER, N. J.

68-16

"In addition to participating in a national research program of the American Heart Association," Dr. McFarland said, "the North Carolina Heart Association maintains its own research program under which 39 researchers have already been approved for the 1969-1970 fiscal year."

WORKSHOP ON MODERN OFFICE CONTRACEPTION FOR THE FAMILY PHYSICIAN

A workshop on Modern Office Contraception for the Family Physician will be sponsored by the Department of Obstetrics and Gynecology of the University of North Carolina School of Medicine on Friday, June 6, at North Carolina Memorial Hospital, Chapel Hill.

The program is designed for physicians interested in enhancing their knowledge and skills concerning contraceptive techniques.

Registration will be limited to 12 physicians, and applications will be accepted in the order in which received.

After the workshop participants will register for an additional morning or afternoon in family planning clinics at North Carolina Memorial Hospital or elsewhere for individual clinical experience with patients (pelvic examination, Papanicolaou smears, IUD insertions, etc.) under faculty guidance. Following this clinical session each participant will receive a kit containing the literature and equipment necessary to offer these office procedures as a part of their practice.

NATIONAL LEAGUE FOR NURSING, INC.

Schools of nursing showed sizable gains in admissions, graduations, and enrollments during the academic year 1967-1968, according to an annual survey of nursing education programs released recently by the National League for Nursing, New York.

Admissions to the three types of schools preparing students to become registered nurses (associate degree, baccalaureate, and diploma) reached 61,389 during the last academic year, a gain of 2,689 over the previous year. Graduations from these schools rose by 3,318 to a total of 41,555 in 1968, while enrollments stood at 145,588, up by 3,640.

Primarily responsible for these increases is the rapid expansion of associate degree nursing programs in junior and community colleges. Forty-nine additional programs of this type were reported in 1968.

Fourteen new baccalaureate degree programs in nursing were also opened in senior colleges and universities.

Offsetting these gains, the number of hospital diploma schools declined by 39 last year, with commensurate drops in admissions and enrollments. Diploma graduations increased, however.

The Month in Washington

The Department of Health, Education and Welfare issued proposed regulations setting standards for rubella vaccine, making it possible it will be ready for distribution in limited quantities by about June 1.

The standards cover production methods, safety, purity and potency. Final regulations could be published as early as May 3. Indications were that two manufacturers would have a vaccine ready for initial distribution soon after the regulations had been made final.

The regulations apply to vaccines containing a live virus strain known as HPV-77, which is grown in either duck embryo or dog kidney cell culture systems. Experimental vaccines produced in accordance with the standards have undergone extensive community testing in the United States and abroad. Two manufacturers, Merck, Sharpe & Dohme and Philips Roxane Laboratories, have produced vaccines based on this strain.

"We hope that more than one vaccine will be available," Dr. Robert Q. Martson, NIH Director, said. "Regulations covering the use of other virus strains and culture media for rubella vaccine production will be formulated on the basis of extensive tests now going on."

* * *

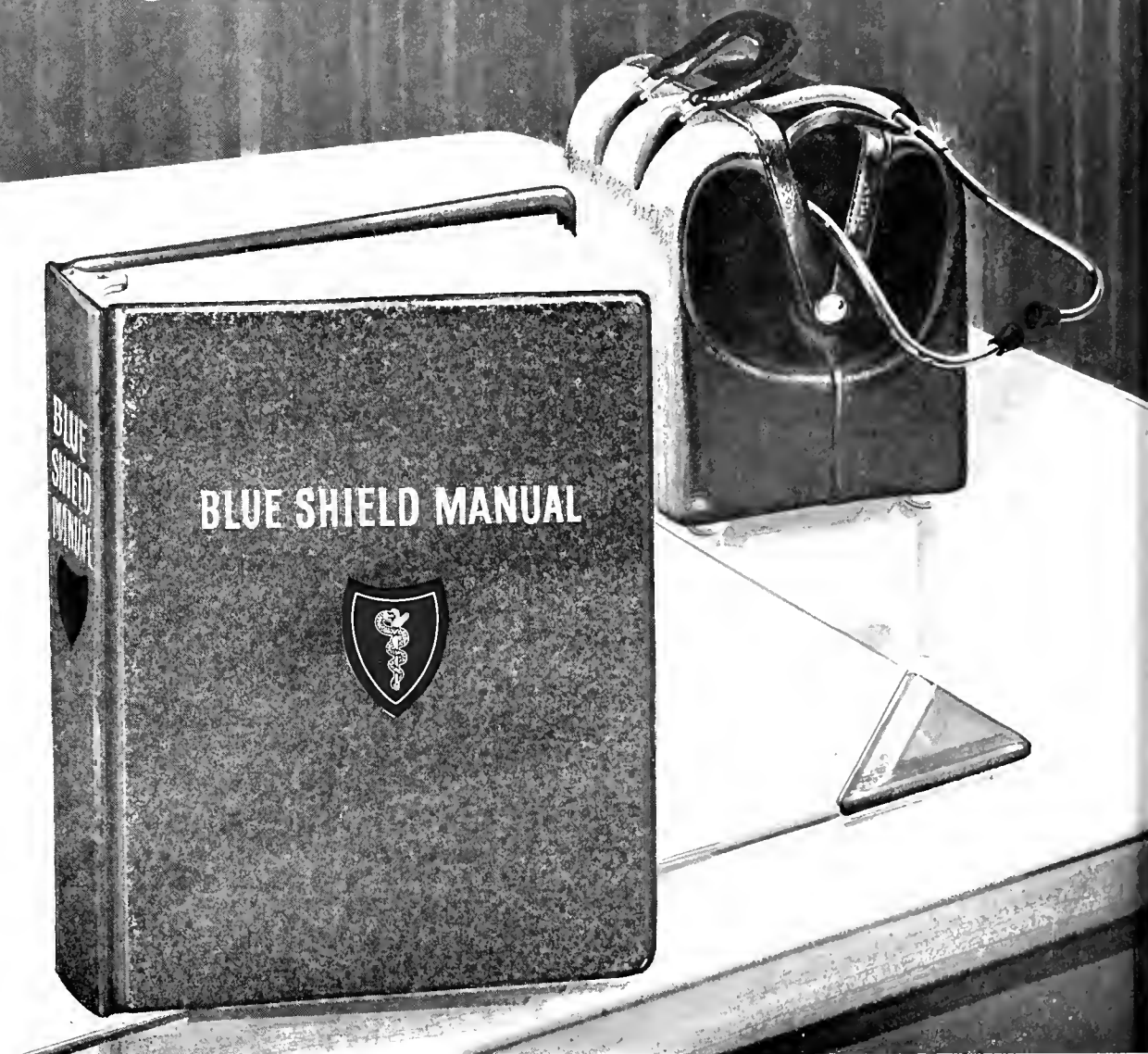
The Food and Drug Administration has taken the first step to halt the marketing of 78 antibiotic combination products.

The ultimate action was recommended by the National Academy of Sciences-National Research Council, which is evaluating the effectiveness of about 3,600 new drugs marketed from 1938 to 1962.

Generally, the 78 products were found ineffective as fixed combinations for claims made in their labeling. The FDA emphasized that this does not necessarily mean that either the antibiotics or other active ingredients of the products are ineffective when used alone.

"But the use of two or more active ingredients in the treatment of a patient who can be cured by one is irrational therapy."

You help write this best seller



The public can't buy a copy of this book, and what's more, they'll probably never see one. But they do realize its benefits every day. And we're pretty proud of that

We're also proud of the fact that you, as a physician, play an important part in writing this book—a manual that assures realistic coverage for 63 million Americans by returning a greater share of subscription income in benefits through non-

profit operations. One that also helps preserve the autonomy of the medical community.

In these days of far-from-the-scene control, the physician's role in determining Blue Shield medical policy is vitally important. To all of us.



BLUE SHIELD
for doctor bills

North Carolina Blue Cross and Blue Shield, Inc.

said Herbert L. Ley, Jr., M.D., Commissioner of Food and Drugs. "It exposes the patient to an unnecessary risk. Antibiotics should be used like a rifle rather than a shotgun."

The majority of the 78 products are antibiotic-sulfa combinations in tablet, capsule, or liquid form. Also included are 16 penicillin-streptomycin combinations that are given by injection.

Other antibiotics used in the preparations include erythromycin, neomycin, tetracycline, chlortetracycline, nystatin, oxytetracycline, oleandomycin, and triacetyloleandomycin. In addition, some of the preparations contain analgesics, vitamins, or other ingredients.

Many of the affected products have been promoted widely and found wide acceptance in the medical profession. Several of the manufacturers promptly said they would contest the FDA ruling and others were expected to oppose it also. The manufacturers were given 30 days to submit any new data on efficacy of the products.

There were 12 products in the first groups, announced last December. A decision still was pending on whether manufacturers of those products should have additional time to submit evidence of efficacy.

The FDA can halt the marketing of antibiotic-containing preparations by deleting them from regulations listing the antibiotic drugs acceptable for certification. Antibiotics and insulin, unlike other drugs, must be certified on a batch-by-batch basis before they can be marketed.

* * *

Two spokesmen for the medical profession asserted before a Senate subcommittee that the policies and scientific journals of their organizations are not biased in favor of the prescription drug industry because of the drug advertising revenue.

Sen. Gaylord Nelson (D., Wis.), chairman of the Senate Monopoly Subcommittee which is making a broad study of the ethical drug industry, accused the medical journals of following the pharmaceutical industry's line to get advertising dollars.

Both Dr. Edward R. Annis, a member of the AMA Board of Trustees, and Dr. Maynard I. Shapiro, president of the AAGP, em-

phatically denied the charge. Both cited the high, objective advertising standards of their organizations' publications.

"The American Medical Association's programs and policies have never been, are not now, and will never be shaped by any dependence on the drug industry," Dr. Annis said. "And to assure that there is no conflict of interest, the AMA has consistently separated the editorial management, advertising acceptance, and business management of each of its scientific publications . . .

"We believe that no publication surpasses our own standards for acceptable advertising."

Nelson sharply criticized the Journal of the American Medical Association as to the ad it carried on chloromycetin after the drug had been judged to be extremely dangerous. Annis acknowledged that "one Madison Avenue effort . . . slipped through the net" of AMA advertising standards. But he pointed out the various warnings on the drug carried in the editorial content of JAMA and other AMA publications.

"Advertising is screened by a group of physicians, all of whom we consider qualified to perform their task," Dr. Shapiro said. "We don't list the names of these physicians in our magazines because we believe they prefer a degree of anonymity. All are medical school faculty members and all, in our opinion, are well qualified to screen pharmaceutical advertising."

Dr. Shapiro also said that at least two drug firms had canceled ads in AAGP publications after they had carried editorials adverse to the companies.

* * *

The Nixon Administration recommended to Congress that the Hill-Burton hospital construction and improvement program be changed to permit block allocation of grant funds to states.

Since enactment of the first Hill-Burton legislation in 1946, federal grants for it have been earmarked for specific purposes.

In a statement to the House Health Subcommittee, Robert H. Finch, secretary of Health, Education and Welfare, said the nation's health needs had changed since the Hill-Burton program was started.



Mrs. Schultz may keep you up all night

(but your accounts receivables won't)

Just as you make a practice of taking over when the going gets heavy, *we* make a practice of looking after *you* when the going gets tough. Just how in the world can we help physicians?

As the nation's leading company offering professional management services, we handle the accounts receivable for thousands of physicians across the country. And since we gave birth to our company over seven years ago, professional men like yourself have found all sorts of reasons to congratulate us:

- They find more time for productive and profitable work.
- Their overhead has been greatly reduced.
- In-office efficiency has increased... and their record-keeping is much more accurate.

- They have fewer collection agency accounts and bad debts.

We also think you'll be interested to know that AMS provides the full spectrum of management services, including leasing your office equipment and automobile.

Why not make up your mind this year to let AMS do it! Call or write Mr. Neil Biggs, AMS representative, 7201 Benita Drive, Charlotte, N. C. 28212, (704) 332-6673.

Automated management — that's *our* baby.

**AUTOMATED
MANAGEMENT
SYSTEMS**



Today's needs, he said, are twofold:

—Modernization or replacement of existing and obsolete acute care facilities in the hospitals and

—Expansion of other kinds of medical facilities to reduce the pressures on hospitals and help curb skyrocketing medical costs.

He recommended a \$150 million annual grant authorization for construction, replacement or modernization of the most critical types of health facilities.

"Additionally, we recommend the removal of the existing Hill-Burton categories to provide a better balance of health care facilities in the community by assisting those kinds of facilities which have traditionally been neglected or in short supply," he said.

Expansion of neighborhood health center programs also was recommended. The HEW statement said it was required to meet the health needs of the poor.

H. Phillip Hampton, M.D., Tampa, Fla., testifying for the AMA, said the AMA continues its long-standing support of the Hill-Burton program but believes that "the major need that exists today is for the improvement and effective use of existing facilities."

"Priority for modernization and the upgrading of existing facilities will lessen the strain on the available supply of health personnel needed to provide services obtained in hospitals and related facilities," he said.

The AMA supported a provision in one of the two Hill-Burton bills before the subcommittee that would permit states to transfer funds from one allocation to another, providing "further elasticity to the transfer of funds from construction to modernization."

The AMA opposed as unnecessary the establishment of Hill-Burton priorities for construction or modernization of outpatient facilities or facilities to provide comprehensive health care. Such needs should be met through other laws already enacted, the AMA said. Dr. Hampton explained:

"We hope to make this point clear: We understand the part played by hospital outpatient departments in providing a place for necessary services to a community, and to the role played in teaching and training. But

we believe that any need for outpatient facilities, separate and apart from the hospital, or for free-standing diagnostic and treatment centers—or whatever they may be called—can be met through other programs which provide federal assistance. The Hill-Burton program is not the appropriate vehicle for grants or priorities for such separated facilities. Nothing has been demonstrated which indicates either public benefit or public acceptance for this concept of providing ambulatory medical care through hospital operated, rather than physician operated, neighborhood clinics."

In Memoriam

Frederick Philip Brooks, M.D.

Frederick Philip Brooks began the practice of medicine in Greenville, North Carolina in 1934. He came with a scholarly background, having earned a doctorate in chemistry as well as an M.D. degree.

He came not only with the ability and willingness to practice medicine, but he was enthusiastic in helping promote a higher level of medical practice in this area when the occasion arose. His coming to Greenville began a new era in medicine, the more general use of laboratory methods in diagnostic medicine in Greenville. He was the first to use the electrocardiograph, as well as the first to make studies of thyroid activity by basal metabolism. He also worked in conjunction with Eastern North Carolina Sanitarium in treating in his office arrested pulmonary tuberculosis by pneumothorax.

Other contributions to medical practice included serving as infirmary physician at East Carolina University (then East Carolina Teachers College), secretary and later president of Pitt County Medical and Dental Society, and counselor of the Second District of North Carolina Medical Society. In December, 1945 Dr. Brooks proposed that the Society support actively a project to acquire for the county an adequate general hospital. He later served as chairman of the staff of Pitt County Memorial Hospital. Dr. Brooks maintained an intense interest in organized medicine and represented this county over many years at State Medical Society meetings. He was an invaluable source of reference in matters of organization, bylaws, and procedure, and gave fact, wisdom and substance to many assignments given him. He had no peer in any performance asked of him.

Dr. Brooks stayed abreast of medical progress. He was an avid reader and student of medicine. His presence was assured at most clinical teaching functions of our medical community, and he could be expected to contribute immeasurably.

In the death of this physician we have lost a friend and an upright, noble, and trusted physician. The

memory of his life, character, and performance will ever be a stimulus to all of us to live more nobly, to work harder in the service of mankind, and to become better physicians. Be it

Resolved that we, as members of the Medical Staff of Pitt County Memorial Hospital and of the Pitt County Medical Society, express to the members of the family of Frederick Philip Brooks our deepest sympathy in their loss.

It is requested that these resolutions be sent to the family, a copy be kept in the minutes of the Pitt County Medical Society, and a copy be kept in the minutes of the Staff of Pitt County Memorial Hospital, Greenville, North Carolina.

Pitt County Medical Society

Octavius Blanchard Bonner, M.D.

Dr. O. B. Bonner of High Point died at the age of 76 on December 25, 1968, of cardiovascular disease.

Dr. Bonner was a graduate of the University of North Carolina and received the M.D. degree from the University of Maryland School of Medicine in 1917. He did graduate work at the New York Eye and Ear Clinic and Cornell University. He came to High Point in 1922 and began the practice of medicine, specializing in diseases of the eye, ear, nose, and throat. He continued in practice until three years ago, when his health began to fail.

Dr. Bonner was a past president of the Guilford County Medical Society and a member of the Medical Society of the State of North Carolina, the Southern Medical Association, the American Medical Association, and the American College of Surgeons.

He was active in civic affairs, being a past president of the High Point Rotary Club, a member of Numa F. Reid Masonic Lodge No. 344 A. F. and A. M., and a member of St. Mary's Episcopal Church, where he served as vestryman and senior warden. To his patients he was a competent and dedicated physician. His loyalty to his friends was an outstanding mark of his character. He will miss his leadership and companionship.

Dr. Bonner was truly a family man. He was justly proud of his wife, the former Ida Owens; his son, Dr. O. B. Bonner, Jr., of Daytona Beach, Fla.; his daughter, Mrs. William A. Nebel of San Diego, Cal.; and his seven grandchildren.

Resolved, That copies of this expression of appreciation be spread upon the minutes of this meeting, and that copies be sent to his family and to the North Carolina Medical Journal.

Guilford County Medical Society

George W. Mitchell, M.D.

Dr. George William Mitchell died at his home in Wilson, North Carolina March 2, 1969. He was born June 6, 1891. The following is an abstract from the Wilson Daily Times:

Dr. Mitchell was a practicing physician for fifty years. He was president of the Wilson County Medical Society and he was active in the county and state organizations. He came to Wilson shortly after World

War I, where he served as battalion surgeon and held the rank of captain in the famous Rainbow Division. He also received five decorations for valor under fire.

Dr. Mitchell was active in the growth of the community. He was instrumental in the selection of Wilson as the site of the Eastern Carolina Tuberculosis Sanatorium. He also had an important part in bringing several industries to Wilson.

In his later years, Dr. Mitchell was interested primarily in agriculture and was active in promoting good agricultural practice. He was a previous president of the Wilson Chamber of Commerce and was on the U. S. Chamber of Commerce Agriculture Committee for eight years.

His many friends join his family in mourning his death.

Charles Lee Nance, M.D.

Charles Lee Nance, M.D., was born in Anson County, on January 11, 1890, and died on December 31, 1968, near his 79th birthday. He had been a prominent, practicing physician in Charlotte for 47 years.

He was the son of the late Wyatt Anderson and Maria Smith Nance. He attended the Unionville high school and the Medical College of North Carolina and graduated from the Medical College of Virginia in 1919. He interned in Memorial Hospital in Richmond, Virginia. He entered into practice in Charlotte in 1921, and since that time had been engaged in an active general practice.

During his years of practice he organized the first free pre-natal clinic at the Charlotte Health Department, and he was the first attending physician at the Methodist Home from its beginning. He was a member of the American Medical Association, the Medical Society of the State of North Carolina, the Mecklenburg County Medical Society, the Southern Medical Association, the Tri-State Medical Association, and the American Academy of General Practice. He was a member of the Charlotte Optimist Club and the American Heart Association, and he was a Shriner.

In 1951 Dr. Nance was elected Mecklenburg County Practitioner of the Year. He has received the American Heart Association Distinguished Service Award, and the North Carolina Heart Association Founder's Award.

Dr. Nance was married to the former Ennis Myers, and from this union came two children: Mrs. Russell T. Montfort of Winston-Salem, and a son, Charles Lee Nance, Jr., M.D., an orthopedic surgeon practicing in Wilmington, N. C.

For all of his honors, Dr. Nance will best be remembered by his colleagues and by the citizens of this community as a physician of great personal integrity. His conduct as a man was always above reproach. He was an active member of the Methodist Church and served on the board of the Hawthorne Lane United Methodist Church for a period of years. His daily life always reflected his deep and fervent belief in christian ideals and in a single deity. He was a man of extraordinary compassion, who treated people

with the utmost gentleness, understanding, and forgiveness. His warm qualities of personal spirit and courage, and his extraordinary moral fiber gave strength to his patients, understanding to his practice, and touched all those who knew him, in a positive and in an affirmative way. He represented a type of ideal man who perhaps now is a vanishing breed; the compassionate family physician who was always a gentleman of the highest caliber.

Now, we come as his colleagues, gathered together, to pay homage to this man and to his memory, and for the indelible stamp that he left upon the people whom he served so beautifully. We fight to preserve the memory of his multiple kindnesses, his extraordinary talent, and his belief in living for people, and serving those people, as an agent of service to his God in whom he believed so fervently. To his wife and his family, we extend our most sincere sympathy and ask them to remember, with upraised heads, that the goodness and the ability and the gentle ways of this fine physician will not be forgotten.

Resolved, that a copy of this memorial be attached to the minutes of the Mecklenburg County Medical Society in perpetuity, and that copies be forwarded to the Medical Society of the State of North Carolina and family.

Mecklenburg County Medical Society

Jame Flournoy Marshall, M.D.

His many friends and patients as well as his colleagues in medicine were shocked and saddened by the unexpected death of Dr. James Flournoy Marshall on March 25, 1969, at the age of sixty-three years.

Dr. Marshall was born in Spray, North Carolina, and received his A.B. degree from the University of North Carolina at Chapel Hill and his M.D. degree from the University of Pennsylvania. He served his residency at Roosevelt Memorial Hospital in New York City and Memorial Hospital for the Treatment of Cancer and Allied Diseases in New York City. Dr. Marshall served as a Lieutenant Colonel in the United States Army Medical Corp from 1942 to 1946, and was Chief Surgeon at the 49th General Hospital in Manila, Philippine Islands.

In 1934 Dr. Marshall came to Winston-Salem. He was co-founder and past president of the North Carolina Surgical Association, past president of the Forsyth County Medical Society, and a member of the Medical Society of the State of North Carolina, the American Medical Association, the American College of Surgeons, the Southern Surgical Association, and the James Ewing Society.

He was attending surgeon at Forsyth Memorial Hospital, North Carolina Baptist Hospital, and Kate Bitting Reynolds Memorial Hospital, and he was assistant professor of clinical surgery of the Bowman Gray School of Medicine. He was also a member of a state committee appointed to study the cause and control of cancer.

Dr. Marshall was active in his church, being a vestryman and a former senior warden of St. Paul's Episcopal Church.

Because of his outstanding career in surgery and his dedication to his patients, friends, and colleagues, be it

Resolved, that on behalf of the membership of the Forsyth County Medical Society, this expression of respect and appreciation be recorded in the official minutes of the Forsyth County Medical Society, the archives of the Medical Society of the State of North Carolina, and that a copy be forwarded to the family of our departed colleague to convey our deepest sympathy.

John C. Wiggins, Jr., M.D.

Forsyth County Medical Society

Arthur Chase Ambler, M.D.

In the death of Dr. Arthur Chase Ambler on February 16, 1968, the medical profession and the community lost both an adornment and an asset. Dr. Ambler was a gentleman, with his own very special charm which never failed to enliven and make more colorful any assemblage of which he was a member. All those who must undergo surgery, as well as their physicians, owe him a lasting gratitude for rescue from the dangers and horrors of casually administered open-drop ether. It was he who was almost singly responsible for making operations safer and more comfortable by the introduction of modern anesthesia in this area.

Dr. Ambler was born in Canton, Ohio, in 1895, and a year later was brought to Asheville. He received his early education at old Orange Street School, Winn's School for Boys, and Asheville School for Boys, where he was later school physician, from 1921 until his death.

In 1918 he received his undergraduate degree from the University of North Carolina. While there he was a member of the Gorgan's Head Society, the Delta Kappa Epsilon scholastic fraternity, and Phi Chi medical fraternity. After completing his medical course at Jefferson Medical College in 1920, he interned at Presbyterian Hospital in Philadelphia.

From 1920 until 1932 he was associated in practice here with his father, Dr. Chase P. Ambler, a prominent specialist in tuberculosis, an outdoorsman, and pioneer conservationist.

After his father's death, Dr. Ambler took a course in anesthesia at New York University Post-Graduate Hospital. Returning to Asheville, he specialized in anesthesiology and introduced here many new agents and methods in this field. Later, in association with Dr. John R. Hoskins, he developed the Department of Anesthesia and the School of Anesthesia at the Asheville Memorial Mission Hospital. He continued an active participant in this department until his retirement in 1966.

In 1941 Dr. Ambler was elected president of the Buncombe County Medical Society and was instrumental in improving hospital facilities in Asheville through the consolidation of the old Victoria, Biltmore, Mission, and Asheville Colored Hospitals in order to establish the present Asheville Memorial Mission Hospital.

In addition to the county and state medical societies,

he was a member of the American Medical Society, American Society of Anesthetists, International Anesthesia Research Society, and Southern Anesthetists' Society; and he was certified as a fellow in anesthesiology.

Dr. Ambler was preceded in death by his wife, the former Mary Barber. Surviving are one son, Arthur Chase Ambler, Jr., of Asheville; two daughters, Mrs. William S. Sagar of Rosman and Mrs. Alexander Russell of Baltimore, Md.; two sisters, Mrs. W. H. Thorne of Asheville and Mrs. Terrence Maunsell of Vancouver, B. C., Canada; one brother, Dr. John V. Ambler of Denver, Colo.; and eight grandchildren.

His colleagues in the Buncombe County Medical Society are unhappily aware that the death of Arthur Chase Ambler has left a vacancy that is unlikely wholly to be filled. To his family and many friends we offer the assurance that we share their grief in a mutual loss.

Buncombe County Medical Society

Classified Advertisements

Director of Medical Education—Internist under 50 preferred. Virginia Metropolitan area—Large general hospital, Medical center, Active clinics, internships, and residencies. 40 house staff. Salary open—c/o Box 790 Raleigh, N. C.

Physicians—2 vacancies on staff. Salary range staff physician \$14,472-\$23,472; staff psychiatrist \$18,420-\$27,180. 40 hour week, 3 weeks vacation, sick leave, and retirement. Contact R. L. Rollins, Jr., M.D., Dorothea Dix Hospital, Raleigh, North Carolina 27602.

Physicians wanted for full time emergency room practice, 424-bed general hospital with medical school affiliation, income from professional fees to patients with guaranteed minimum of \$25,000, no expense, 40-hour week, with time for living, family, vacations. Call or write Harold L. Bettis, Director, Moses Cone Hospital, Greensboro, N. C., 27405.

Book by UNC Professors Wins Award

The Anisfield-Wolf Award in Race Relations for "the best scholarly book in the field of race relations published in 1968" was presented to "Negro and White Children," published by Academic Press, Inc., New York.

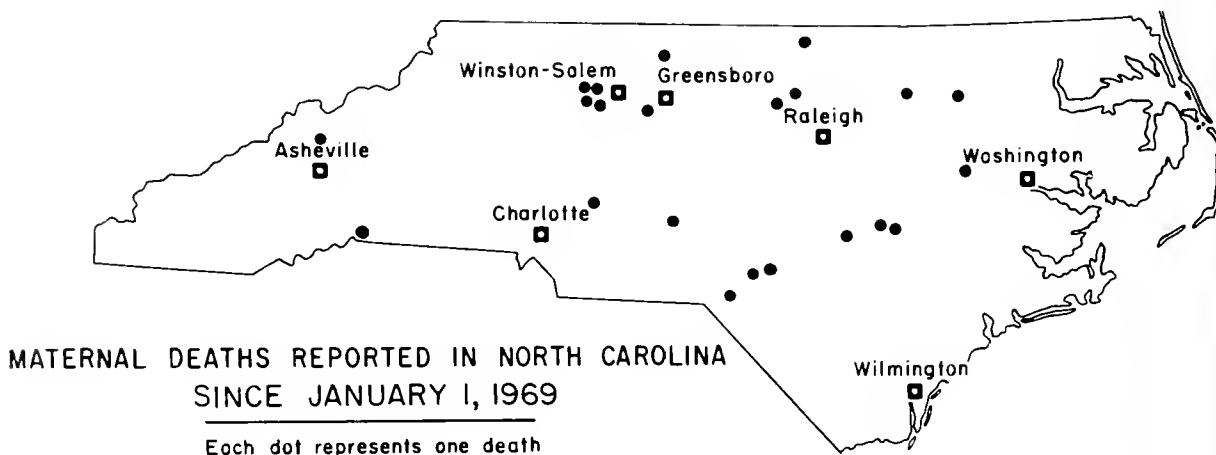
Subtitled "A Psychological Study in the Rural South," the book, by E. Earl Baughman and W. Grant Dahlstrom, both of the Department of Psychology, University of North Carolina, is the result of a four-year study of racially-segregated students in a rural economically-deprived area of North Carolina.

The results of the study, according to the authors, indicate that "... there is no scientific way to prove racial inferiority, superiority, or a one-to-one equality. And, because the differences that do exist ... may very well be attributable in significant degree to modifiable aspects of the social order in which they are created, we need to know about these differences with as much precision and objectivity as possible if we are to maximize the likelihood that planned innovation will result in less behavioral inequality."

Commenting on the award, Walter J. Johnson, president of Academic Press, stated that "we are indeed gratified that an Academic Press book has been awarded so signal an honor. More important, however, this award underscores the importance of the scientific approach to the problems of our society—in all its aspects—if man is to overcome present problems and avoid future ones."

According to the North Carolina Heart Association research is the primary function of the Heart Association. In the past twenty years \$133,500,000 Heart Fund dollars have been allocated to research in the cardiovascular field. This year 12 million dollars will be allocated for research, with \$215,000 being spent in North Carolina.

The American Cancer Society's Professional Education Program has a twofold purpose: to save lives and reduce suffering from cancer. Members of the medical profession interested in this program, call your local ACS office.





MEDICAL JOURNAL

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IN THIS ISSUE:

President's Farewell Address

DAVID GOE WELTON, M.D.

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President's Address

Medical Manpower

DAVID GOE WELTON, M.D.

It is customary, I am told, for the outgoing president to present a philosophical dissertation on this occasion. Considering the urgency of the times, and being more of a realist than a philosopher, I prefer to speak to you on a subject which involves us more than any other today—namely, “Medical Manpower.”

Arthur “Red” Motley, known as America’s number one salesman, publisher of *Parade* magazine and a former president of the U. S. Chamber of Commerce, coined a slogan which became famous: “*Nothing happens until somebody sells something.*” No people are hired, no wheels turn, no orders are received until “somebody sells something.” Paraphrasing this, in our profession, “Nothing happens until a doctor treats a patient.” Or, more broadly, in the field of individual health care, nothing happens until a physician or trained health worker renders a service *personally* to another individual. All the legislation, all the committees and commission, planning meetings, etc., are for naught *Until somebody takes care of someone*; until a service is rendered person to person.

The focus of public attention on all aspects of medical service is more intense today than it ever has been, and promises to continue this way. And this is good. An increasing appetite for more and better medical service, along with much needed improvements in *housing, education, nutrition, and environmental control*—all point the way to a high-

er level of good health in our country. This *is* the common objective. Like some other appetites in our consumer economy, however, a sudden increase cannot be satisfied immediately. If the country suddenly demanded twice the number of teachers, or preachers, or lawyers and judges, or nuclear physicists, let’s say, it would take considerable time to satisfy this demand. Manpower shortage is a widespread problem these days; it is not confined to the medical field.

Why this general manpower shortage?

1. The increasing orientation of the economy toward technology
2. The increasing sophistication of the American environment
3. The physical growth of the economy
4. The hot and cold wars

Health manpower has been defined as “Pooled human energies directed towards rendering health service.” In this service area there are four categories: personal, community, research, and education. In the time available, let us concentrate on the first of these: *personal health service*. This is where you and I function . . . in the “front line.”

We are acutely, indeed at times painfully, aware of the sound and fury which have arisen over the delivery of medical services. The commotion has created its own paradox: at the very time when physicians are needed to meet the increasing needs of patients, many are obliged to take time to participate in numerous local, state, regional, and national meetings covering a wide spectrum of subjects such as the socio-economics of health care, medical education—particularly

Read before the First General Session, Medical Society of the State of North Carolina, Pinehurst, May 19, 1969.

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the physician's *own* continuing education—the obtaining and training of allied health professionals, medical legislation, *etc.* Every one of these is important, and our voice must be heard in these deliberations.

This subject has been studied by private institutions, a presidential commission, state legislative commissions, medical educators, and many medical organizations. Rather than attempting to summarize the voluminous material published by these groups, let us in summary form outline the problem, measure it, and discuss what can be done about it.

The Problem

When I was in medical school more than 30 years ago, there was no agitation about manpower. Indeed, as one finished his training the chief concern was, "Where can I earn a living?" The struggle for survival—in the thirties—provided a motivation unfamiliar to most of today's generation in training. During World War II the public accepted shortages of all kinds. Then a flood of new physicians was produced in the fifties and the sixties. But today we are in a completely different "ball game." Philip Lesly put it this way: "We are living in what has been called the Age of Rising Aspirations, but which more accurately can be called the Age of Unreasonable Expectations."

In a transition period of profound social change which affects every segment of society, Mr. Lesly points out: "Marvelous changes have come so fast that many people, especially those who did not experience the trials of adult life before 1946, now feel "miracles" can be had just by wanting them belligerently enough. Humanity now clamors for immediate solutions to massive problems."

So, this is our problem: unrealistic expectations coupled with demands for immediate realization.

Even though new physicians and allied health personnel are being produced at a rate greater than that of the population increase, we are not meeting all the demands of today's affluent and ghetto society. The combination of actual health needs and cascading demands is putting pressures on the health professions which have never been

experienced before. Federal legislation added explosively to these pressures. Thus the providers of health services are faced with the immediate necessity of (1) increasing trained manpower in numbers as well as in variety of skills, and (2) increasing over-all productivity.

Measuring M.D. Manpower

The physician-population ratio is the most commonly used yardstick of the supply of medical manpower. It is a crude and inaccurate yardstick because it fails to take into consideration two factors which are of far greater significance than mere numbers—namely, distribution and productivity.

Our entire population has become more and more urbanized and continues in this movement. This is a social phenomenon which sociologists, legislative bodies, government, and private planners all accept. No one has discovered how to stop it. Yet these same experts clamor for physicians in the very same rural areas which are being deserted by the natives there. In 1967, for example, the six metropolitan counties of North Carolina had 26% of the state's population and 43% of the physicians. (Of course, our three medical school centers account for much of this concentration). Physicians are *people*. Except by the Armed Services, they can't be *forced* to go to some place to practice. They are highly motivated individuals, the deans say, and must be *attracted* to a place to live and practice. Factors such as good schools, cultural and recreational facilities, the general economics, and environment influence them. In short, we have an uneven distribution of physicians for the same reasons that we have clustering of our general population. While this fact remains unsolved, there are experimental programs which are searching for a remedy.

How do we rank by this admittedly crude yardstick? In 1967 the national average (again, misleading) was 150 M.D.'s per 100,000 people. North Carolina had approximately 90 per 100,000 in 1968. Of the 4,500 M.D.'s available for patient care in our state, 1,000 are hospital based, 1,200 in general practice, 1,100 in surgical specialties, 750 in medical specialties, and 500 other. In private

practice, then, we have about 69 per 100,000 as compared with 97 nationally.

How about *production* of new physicians? In the fall of 1968, out of some 18,000 applicants, the 90 medical schools in the country accepted 9,479 into their freshman classes . . . the largest number in their history. The total number of students in all four years was 35,000, which is all the schools can handle with the present facilities. With sufficient additional funding, most of these schools could increase the number of students in each class significantly. This is what needs to be done in North Carolina as soon as possible. While it takes at least 10 years and 100 million dollars to build a new medical school, starting from scratch, for one-third of this sum an existing school can double its output in much less time.

What Can Be Done

Persistent recruitment is necessary if we are to meet the manpower needs. There is a place for almost everyone who is interested in a medical career: In addition to physicians and nurses, there is a great need for trained assistants of all kinds, technicians in many categories, therapists, and new breeds. Your Society has just completed a new Medical Career TV production—a 30 minute program designed for high school groups. It will be used by educational TV stations and ultimately on commercial stations, with film copies available for high school groups.

Curriculum revisions have been and will continue to be made. Re-structuring of the entire premedical and medical school years has been called for by leading medical educators.

So, we are *not* standing still. Multiple efforts to improve the supply of physicians, nurses, and other health workers are underway.

We are fortunate to have three outstanding medical schools in North Carolina (UNC at Chapel Hill, Duke in Durham, Bowman Gray in Winston-Salem). The total number of M.D. graduates from these schools this June will be 222. This is fewer than we need in North Carolina, so we do attract additional doctors, educated and trained else-

where. At the same time, of course, some of our graduates go elsewhere for postgraduate training, but an increasing percentage return here or stay here. Nevertheless, we do need to increase our own production, and this can be done as soon as funding is available.

Plans to double the number of students in each class have been made; the schools stand ready to implement them. The UNC School of Medicine has not received enough funds to permit such expansion, but at present there are three bills pending in our General Assembly which, if passed, and they should be passed, will begin to make expansion possible. Our two privately supported schools, Duke and Bowman Gray, are in serious financial difficulty, as was explained in the November, 1968 issue of your *N. C. MEDICAL JOURNAL*; the causes for this plight are documented there. Another bill pending in our Legislature would provide \$455,000 in state funds during the next biennium so that \$3,250 can be paid to each of these schools for each North Carolina resident freshman student the first year, and to each North Carolina resident freshman and second year student the following year. The state has been doing this for North Carolina residents who attend Meharry Medical School (Nashville, Tenn.) and for North Carolina students who wish to become doctors of veterinary medicine (and who attend such schools in Georgia or Oklahoma). States that have pioneered in this type of support include Florida, Pennsylvania, New York, and Ohio. Such support is necessary to enable these schools to operate.

Additional state support is needed for the 22 diploma schools of nursing in North Carolina. A bill currently under consideration in Raleigh would increase the present allowance from \$100 to \$400 per student per year. These schools are producing at least half of our new nurses, and should be supported.

In summary, then, it is clear that financial aid as described must be made available to our existing institutions to permit them to survive and to increase their output. We should utilize to the fullest capacity our present facilities and faculties.

At the same time, long-range planning should be in progress regarding an additional medical school and medical centers. Whenever I speak on this subject, I am usually misquoted. So, let me make my position absolutely clear: I am not opposed to a new medical school anywhere. Since the taxpayers ultimately have to pay for such a facility, it is their right to know how much it will cost and to expect that whatever the available funds in the state budget, they will be allocated and administered efficiently. We in the medical profession stand ready to assist in these endeavors in any and every way we can. The Medical Society of the State of North Carolina has always accepted a responsibility in the field of medical education. Along with the deans of our medical schools and other health administrators, we have participated in many hearings both in Raleigh and in Washington, and we will continue to do so.

And let us not forget our fine community hospitals and their increasing role in medical education and the training of allied health personnel. Many physicians in private practice are devoting much time and effort to these endeavors, as well as participating as clinical associates in the programs of the medical school centers. Federal aid to community hospital programs of this type is denied, because they do not grant an academic degree. This situation should be rectified.

Productivity

Earlier I stated that the physician-population ratio is a crude yardstick, because it fails to measure distribution and productivity. So, let's talk now about productivity. Considering the length of time and the cost required to produce one new M.D., an increase in the productivity of physicians now in practice is our principal hope for the immediate future. The physician should be provided with an organized system of facilities and trained assistants who can, under his supervision, do many of the routine chores he himself has been doing, as well as performing the newer technical procedures which he already delegates to them. And let us not forget the importance of an ade-

quate office staff to handle the increasing blizzard of paper work! The physician's time should be conserved for counseling and decision making. In management terms, a physician should be a "guidance system," not an oracle nor a memory bank. Guidance systems depend on highly organized data banks; this is where the computer comes in.

In order to attain increased productivity, physicians, of course, must delegate more daily chores than most have been accustomed to doing. This *can* be done in a way which will not destroy the cherished physician-patient relationship, and which will not deprive the patient of essential time of his doctor, but which will make it possible for that physician to be of service to more patients. Assistants trained especially for this purpose are beginning to be available, such as Duke's physician's assistant, Bowman Gray's pediatric assistant, orthopedic assistants in several centers around the country, etc. Additional training programs are beginning in community colleges. For many of us in private practice, our own medical assistants, trained "on the job," are largely responsible for making possible the increased productivity which has already been achieved. We could not function effectively without these fine "girls." Through their local and state associations, the North Carolina Association of Medical Assistants, and their national organization, the American Association of Medical Assistants, they carry on a high quality education and certification program. They need and deserve our *enthusiastic* support.

Note that I have *not* said that physicians must increase the number of hours in their work week. While many occupational groups in today's society are achieving a shorter work week and more fringe benefits, the pressures on us tend to *lengthen* the work week, and this is not healthy for doctors already putting in 60 to 80 hours a week conscientiously. A physician does no one a favor by overworking himself until he loses his own health; this is bad for him, his family, his community, his profession. Each has his own physical limitations and should learn to recognize and respect them. So the answer is to supply him with additional assis-

tants so that, with good management, he can render high quality care to more people.

For these reasons, I call upon you to examine your own practice, and to do all you can to increase your own productivity, within the limits of maintaining your own health. In my opinion, this offers the best hope for the immediate future in meeting manpower needs.

Certainly, we should make long-range plans for improving the delivery of medical service: how to make it more accessible, for example, to groups who now don't seem to get it even when it is available. Education, again, is the key factor in this situation.

I have spoken of the need for each physician to recognize and respect his own physical limitations as being essential for the preservation of his own health and therefore his usefulness to society. In another vein, society should not expect physicians to be sociologists or economists. Alone we cannot cure the ills of Appalachia or the ghetto. What we recognize medically and treat is the result of underlying poverty, malnutrition, etc. Dr. Alex Gerber stated: "This is *not* to say that physicians do not have a high degree of social consciousness, or that they are not painfully aware of the vexing dilemmas with which the lower socio-economic groups must contend. It *is* to say, however, that physicians, like attorneys, engineers, and bankers must involve themselves only as socially aware citizens, cognizant of the fact that they have no expert role to play by virtue of their training."

Before closing, let me quote from an economist's view of the health service "industry." Richard M. Bailey states:

"The economist's approach is to ask the direct question: How does one get goods or services produced that are in line with society's needs? Generally, the economist does *not* say, 'Go start a new governmental firm to produce these services.' Rather, he encourages the private production of these services by making it profitable. The analyses that we have covered, which deal with attacking diseases early in their development, can be transferred into specific goals. If government wants to achieve these goals, it may do so by rewarding those producers

who respond to these goals. Conversely, the public attitude may make it financially difficult for those who do not respond to meet this kind of demand.

"The implications of these changes—for the medical profession, for all the health professions, and for the traditional production process—are great. It means taking a new look at what needs to be done; what services need to be produced in the future. We are saying that individual market demand criteria are not the *only* existing criteria. Increasingly, government seems ready to funnel funds into areas where the payoff to society seems higher. This may be in producing services in ways quite different from those we are accustomed to today. It may mean the complete reorganization of many of the institutions of health. But I do not see government anxious to use force to bring change. Rather, I see government using financial (economic) incentives to effect changes that have seemed only idealistic before. As a society, we are searching for objectives; then exploring ways to make them financially attractive for producers to respond accordingly. The changes that are occurring in the health field need to be viewed in this overall context. The simple phrase that medical care is a right and not a privilege implies tremendous changes in the kinds of medical services that need to be produced, how they will be distributed, how the professions will interact with one another, and how various organizations will respond to meet the needs."

Now there is some real food for thought. . . which may be rather indigestible to some of us. I wish more federal administrators and lawmakers understood the difference between incentives and controls! Mr. Bailey may, but many high government officials do not. Here is another obligation of ours: we should attempt to educate them, difficult though it may be. Alfred North Whitehead states: "The major advances in civilization are processes which all but wreck the societies in which they occur." This underscores our need to "preserve order amid change."

Conclusion

I commend you for your continuing con-

scientions and faithful endeavors, for your dedication to doing your very best for every patient, for your interest in improving your own knowledge and skills, for your participation in your own community's problems, for your participation in your county society's work and in the work of our State Society. The activity of our 63 committees during the past year is an impressive example of your sincere and serious concern. And why *are* we concerned? Because we *do* have a social conscience.

Finally, my heartfelt thanks and apprecia-

tion to all of you for your splendid support and cooperation during this year, and for the privilege of serving as your president.

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Trends in Illegitimacy and Associated Mortality in North Carolina, 1957-1966

THEODORE D. SCURLETIS, M.D., KATHRYN SURLES, M.ED. AND JAMES R. ABERNATHY, PH.D.

In North Carolina, as in the United States as a whole, the birth rate has declined steadily since 1957; simultaneously the proportion of illegitimate births has continued to rise. The purpose of this report is to examine the trend of illegitimacy in the state and to describe factors associated with it, particularly differentials in mortality. Variations in legitimacy and associated mortality by age of mother, birth weight, and birth order are discussed.

For purposes of comparative analysis, data for the successive five-year periods, 1957-1961 and 1962-1966, are examined. The sources of these data are certificates of live births and fetal deaths filed for all infants born of North Carolina residents during the periods studied, and death certificates of resident infants who died neonatally or postnatally during each period.

State vs. National Trends

Illegitimacy

The number of resident live births in North Carolina dropped from 113,143 in 1957 to 92,727 in 1966. Nonwhite births decreased 24%, from 37,800 to 28,620; white births decreased 15%, from 75,343 to 64,107.

Simultaneously the number of white ille-

gitimate births has risen since 1957, while nonwhite illegitimate births increased from 1957 to 1964 and decreased thereafter. In 1966 nonwhite illegitimate births were slightly fewer than in 1957. Table 1 shows the number of illegitimate births and the illegitimacy ratio* for both races.

The drop in the number of white births with an increase in the number of white illegitimate births has resulted in an overall increase of 67% in the illegitimacy ratio among whites. The nonwhite illegitimacy ratio increased 31%, from 23.0 in 1957 to 32.1 in 1966. For all races combined, the increase in illegitimacy from 1962 to 1966 was nearly five times the gain experienced during the preceding five years.

These increases, while substantial, were less than those experienced by the country as a whole. From 1957 to 1966, the illegitimacy ratio among white births in the United States increased approximately 130%, while the nonwhite ratio increased 36% during the same decade.¹ In 1966 the white illegitimacy ratio was lower for North Carolina (3.5) than for the United States (4.4), the lower state ratio continuing a trend begun in 1962. Among nonwhite births the North Carolina ratio of 30.1 in 1966 exceeded the national

From the North Carolina State Board of Health, Raleigh.
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*Proportion of live births.

Table 1

**Total Live Births, Illegitimate Live Births, and Illegitimacy Ratios by Color
North Carolina, 1957-1966**

Year	Total Live Births			Illegitimate Live Births			Per Cent Illegitimate		
	Total	White	Nonwhite	Total	White	Nonwhite	Total	White	Nonwhite
1957	113,143	75,343	37,800	10,298	1,597	8,701	9.1	2.1	23.0
1958	110,492	74,522	35,970	10,025	1,579	8,446	9.1	2.1	23.5
1959	110,769	75,073	35,696	10,184	1,784	8,400	9.2	2.4	23.5
1960	111,721	76,777	34,944	10,312	1,729	8,484	9.1	2.3	24.3
1961	109,732	75,069	34,663	10,438	1,884	8,554	9.5	2.5	24.7
1962	109,549	75,166	34,383	10,595	1,859	8,736	9.7	2.5	25.4
1963	107,322	73,449	33,873	10,666	1,923	8,743	9.9	2.6	25.8
1964	106,061	72,399	33,662	11,141	2,027	9,114	10.5	2.8	27.1
1965	97,656	66,271	31,385	10,970	2,077	8,893	11.2	3.1	28.3
1966	92,727	64,107	28,620	10,865	2,262	8,603	11.7	3.5	30.1
1957-61	555,857	376,784	179,073	51,158	8,573	42,585	9.2	2.3	23.8
1962-66	513,315	351,392	161,923	54,237	10,148	44,089	10.6	2.9	27.2

ratio of 27.7; nonwhite ratios were lower for the state throughout the entire period. Figure 1 shows these state and national rates by race for the ten-year period.

Mortality

In North Carolina, as in the United States as a whole, differences in mortality between legitimate and illegitimate infants are wide, particularly among members of the white race. For example, postneonatal mortality during 1957-1961 was 73% higher among white infants born out of wedlock than among those born in wedlock.

Table 2

Perinatal and Postneonatal Mortality Rates by Color and Legitimacy Status

Color	1957-1961		1962-1966	
	Perinatal	Post-neonatal	Perinatal	Post-neonatal
Total white	31.2	5.6	29.6	5.2
Legitimate	30.7	5.5	29.2	5.1
Illegitimate	49.5	9.5	43.0	7.5
Total nonwhite	55.5	22.4	52.6	21.8
Legitimate	54.1	20.3	50.7	19.6
Illegitimate	60.0	28.9	57.9	27.7

What, then, are the ramifications of the increase in illegitimacy in terms of perinatal and postneonatal mortality?

Five-year averages of perinatal and postneonatal death rates are shown in Table 2. All rates were lower during the 1962-1966 period than for the previous five years. This was true for both races, regardless of legitimacy status. Among both legitimate and illegitimate white infants as well as nonwhite illegitimate infants, declines in postneonatal mortality were greater than reduc-

tions in perinatal mortality. For nonwhite legitimate infants, the reverse was true.

While decreases in the five-year average mortality were substantial for all groups, reductions were particularly impressive among white illegitimate infants. Perinatal rates decreased 13.1%, and postneonatal deaths dropped from 9.5 to 7.5 per 1,000 neonatal survivors, a decrease of 21.1%. These declines far exceeded the decreases among white legitimate infants and nonwhite illegitimate infants.

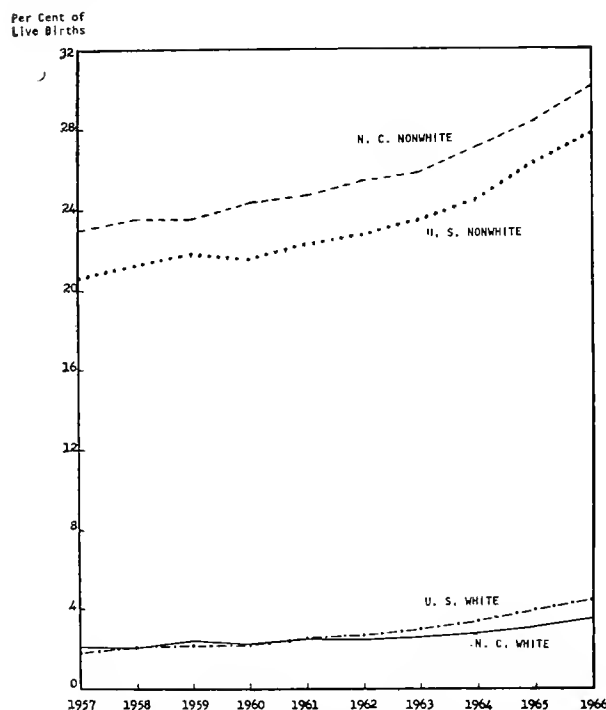


Fig. 1. Illegitimacy ratios by race for the United States and North Carolina, 1957-1966.

Table 3
Perinatal and Postneonatal Rates by Legitimacy, Race, and Birth Weight
1957-1961 and 1962-1966

Birth Weight in Grams	1957-1961				1962-1966			
	White		Nonwhite		White		Nonwhite	
	Leg.	Illeg.	Leg.	Illeg.	Leg.	Illeg.	Leg.	Illeg.
Perinatal								
<1500	806.7	801.6	763.3	736.0	780.6	774.1	730.8	725.5
1501-2500	127.3	100.8	137.0	124.0	114.4	111.6	114.1	94.5
2501-3500	12.3	17.1	21.8	21.0	11.2	14.0	18.5	18.6
>3500	8.3	14.2	20.8	25.6	7.7	6.5	18.4	20.8
Unknown	687.3	312.5	738.5	664.7	663.0	611.1	702.1	641.8
Total	30.7	49.5	54.1	60.0	29.2	43.0	50.7	57.9
Postneonatal								
<1500	34.1	40.0	74.3	127.1	27.4	49.2	71.5	84.4
1501-2500	16.0	20.2	48.2	51.4	16.1	12.7	40.6	50.7
2501-3500	5.5	8.2	19.1	26.4	4.9	7.5	18.7	24.5
>3500	3.5	8.2	12.9	19.7	3.4	4.6	12.1	20.0
Unknown	15.9	0.0	29.4	69.0	0.0	0.0	71.4	20.8
Total	5.5	9.5	20.3	28.9	5.1	7.5	19.6	27.7
Mean birth weight (live births)	3293	3120	3179	3051	3279	3138	3127	3004

Legitimacy and Mortality Differentials

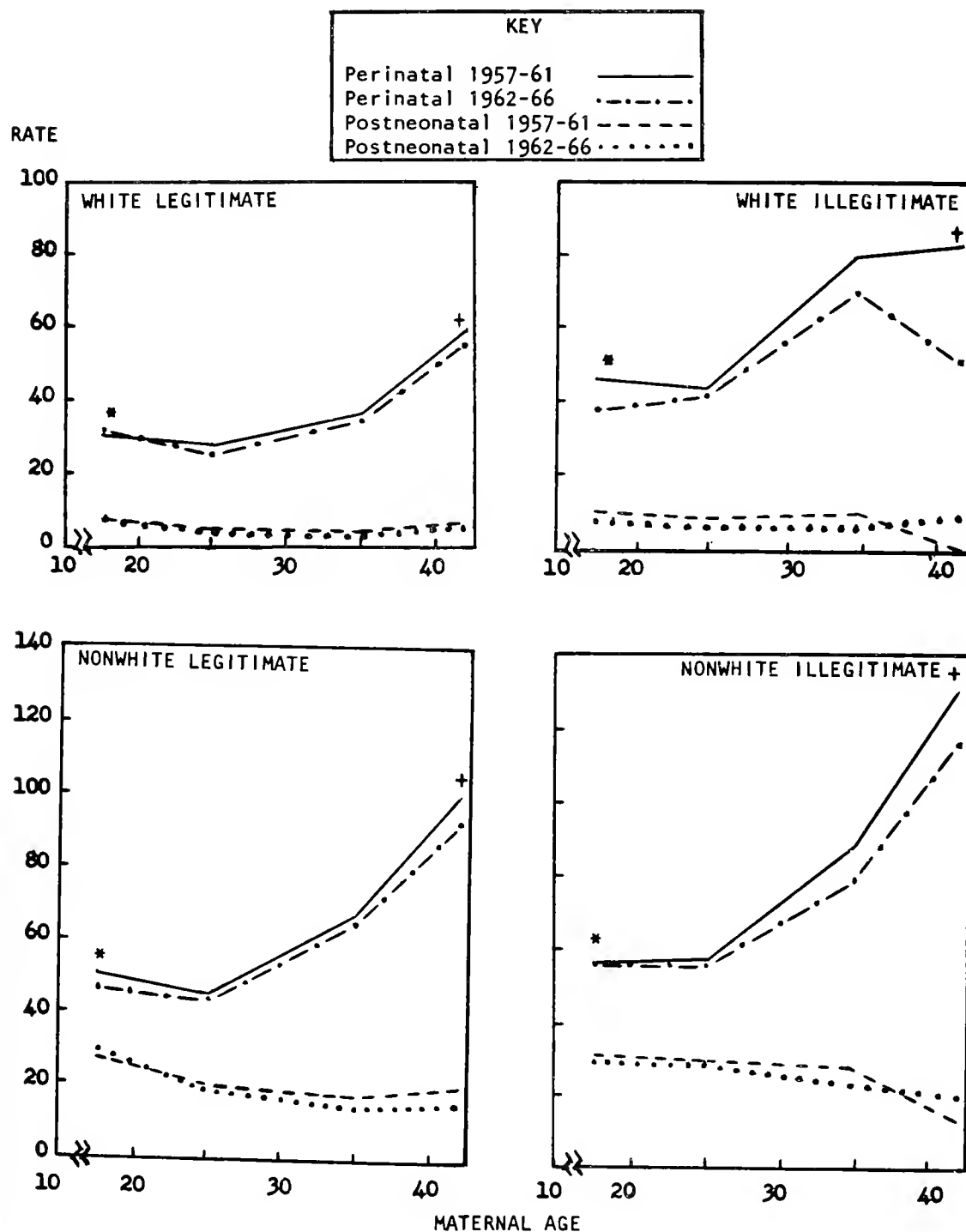
An increase in illegitimacy and simultaneous decreases in perinatal and postneonatal mortality in North Carolina have been demonstrated. Tables presented hereafter show death rates associated with those variables for which data are available from the vital records. In the discussion an attempt is made to compare the five-year average rates for the periods 1957-1961 and 1962-1966, and to pinpoint those areas in the distribution of birth weight, maternal age, and birth order in which improvement in mortality has occurred.

Birth weight

Perinatal mortality was lower during 1962-1966 than during the preceding five-year period for most birth weight categories (Table 3). The exception was white illegitimate infants weighing from 1501 to 2500 grams, among whom the perinatal rate was higher for 1962-1966. For the other race-legitimacy groups, however, the greatest reductions in perinatal mortality occurred among infants in same birth weight range (1501-2500 grams), with least improvement, as expected, noted among infants weighing 1500 gm at birth. For all race-

Table 4
Perinatal and Postneonatal Rates by Legitimacy, Race, and Maternal Age
1957-1961 and 1962-1966

Maternal Age	1957-1961				1962-1966			
	White		Nonwhite		White		Nonwhite	
	Leg.	Illeg.	Leg.	Illeg.	Leg.	Illeg.	Leg.	Illeg.
PERINATAL								
<20	31.1	46.5	51.5	56.2	32.6	38.0	45.8	55.6
20-29	27.7	44.1	45.5	56.9	25.8	41.8	43.6	55.0
30-39	36.3	79.9	67.1	87.8	34.9	70.8	64.4	78.3
40+	59.3	83.3	99.7	131.1	54.9	52.6	92.9	115.9
Unknown	186.0	250.0	146.3	360.0	272.7	800.0	166.7	769.2
Total	30.7	49.5	54.1	60.0	29.2	43.0	50.7	57.9
POSTNEONATAL								
<20	7.7	10.2	28.1	29.8	7.3	7.8	30.2	28.5
20-29	5.3	8.9	19.7	28.6	4.9	7.3	19.1	27.8
30-39	4.3	10.2	17.8	26.5	3.7	6.3	14.5	21.9
40+	6.8	0.0	20.3	12.6	5.2	9.3	14.9	19.1
Unknown	0.0	0.0	28.6	0.0	0.0	0.0	0.0	333.3
Total	5.5	9.5	20.3	28.9	5.1	7.5	19.6	27.7
Mean Mat. Age. (live births)	25.8	22.1	26.8	21.5	25.3	21.8	26.3	21.1



Perinatal Rate: Deaths per 1,000 deliveries
 Postneonatal Rate: Deaths per 1,000 neonatal survivors

*Represents < 20
 +Represents 40+

Fig. 2. Perinatal and postneonatal death rates by legitimacy, race and maternal age.
 North Carolina, 1957-1961 and 1962-1966

legitimacy groups, particularly illegitimates, substantial reductions are noted for mature infants (2500 gm or over).

Reductions in postneonatal death rates, on the other hand, were particularly evident among low-weight infants. Reductions in the postneonatal rates among heavier infants at birth were less impressive than those noted in perinatal rates, discussed above. Again, the exception was illegitimate white infants, among whom an increase in the postneonatal rate was observed for infants weighing 1,500 gm or less. It follows that the notable improvement in postneonatal mortality experienced by white illegitimate infants is mainly a result of reductions in rates among high-weight infants. As was

true regarding perinatal mortality, declines in postneonatal mortality were impressive among illegitimate infants weighing more than 3,500 gm at birth.

These declines in perinatal and postneonatal mortality were coupled with slight decreases in the mean birth weight for live births of all race-legitimacy groups except white illegitimate infants, among whom the average weight was slightly higher during 1962-1966 than formerly. Although the increase was relatively negligible, it may account for some part of the lower death rates of that particular group.

Maternal age

Maternal age-specific mortality rates are shown in Table 4 and are presented graph-

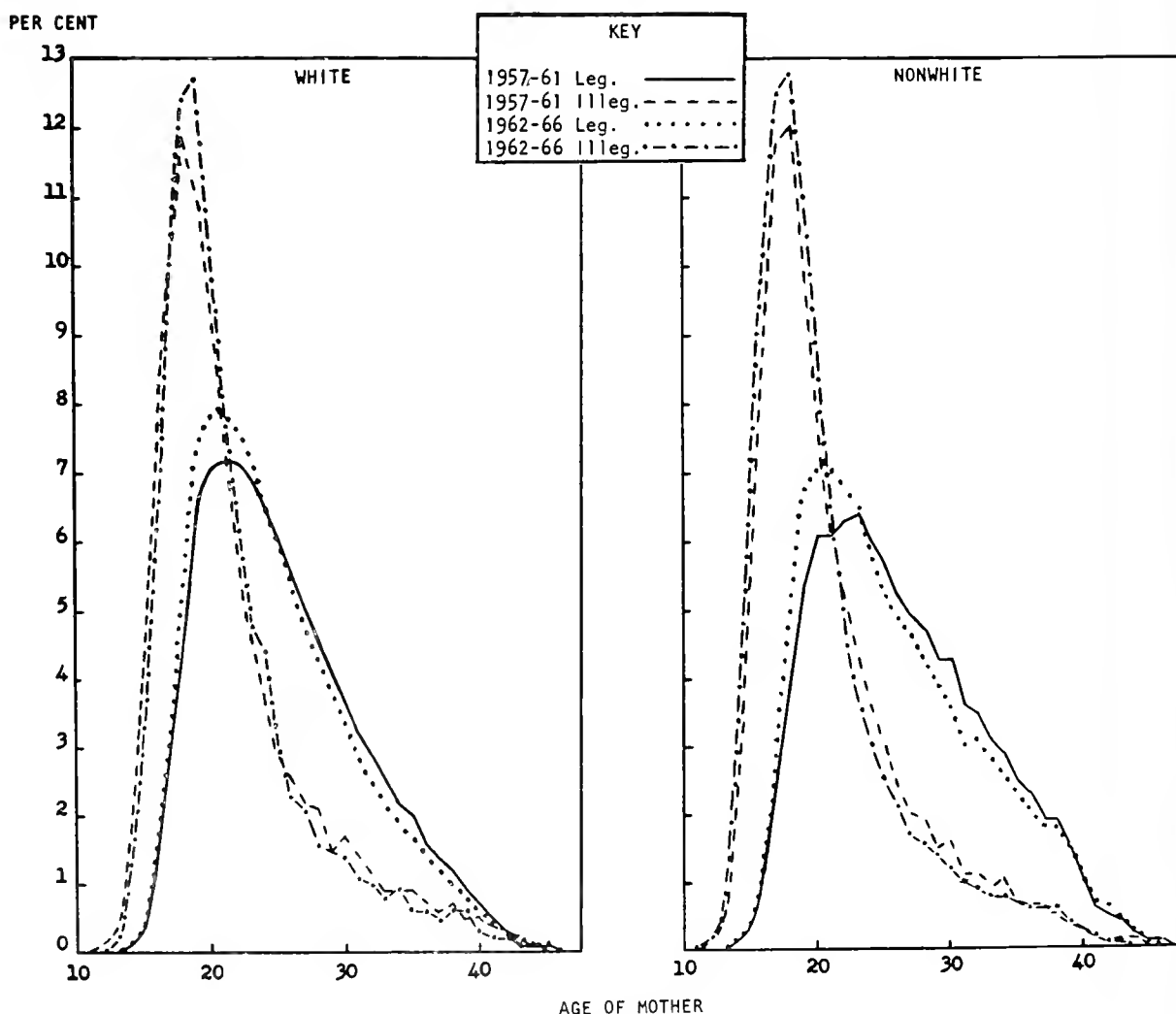


Fig. 3. Distribution of legitimate and illegitimate live births by race and maternal age. North Carolina, 1967-1961 and 1962-1966

Table 5
Perinatal and Postneonatal Rates by Legitimacy, Race, and Birth Order:
1957-1961 and 1962-1966

Birth Order	1957-1961				1957-1961			
	White		Nonwhite		White		Nonwhite	
	Leg.	Illeg.	Leg.	Illeg.	Leg.	Illeg.	Leg.	Illeg.
Perinatal								
1	27.0	45.5	49.4	56.6	26.6	40.1	41.0	52.7
2-3	28.2	57.3	44.3	56.9	26.9	43.5	42.1	58.4
4-5	35.2	52.4	48.3	63.9	33.5	53.2	49.9	64.4
6+	49.3	66.5	67.9	82.8	45.6	71.6	64.3	75.2
Unknown	110.2	187.5	158.7	230.8	83.3	600.0	333.3	733.3
Total	30.7	49.5	54.1	60.0	29.2	43.0	50.7	57.9
Postneonatal								
1	4.1	8.4	14.4	24.0	3.7	6.2	13.7	19.9
2-3	5.1	9.9	20.4	33.2	5.3	11.7	21.0	36.6
4-5	7.2	21.7	21.1	32.4	6.1	5.3	21.4	34.8
6+	9.2	6.5	21.7	34.6	8.7	11.4	19.7	31.8
Unknown	0.0	0.0	37.7	33.3	0.0	0.0	0.0	0.0
Total	5.5	9.5	20.3	28.9	5.1	7.5	19.6	27.7
Mean birth order (live births)	2.7	1.7	4.7	2.4	2.6	1.7	4.5	2.3

ically in Figure 2. Although rates for most age categories were lower during 1962-1966 than during the preceding period, trends in rate reductions among legitimate infants are negligible. Among illegitimate infants born of older women (40 years or older), however, perinatal rate declines were noteworthy. For both young (less than 20 years of age) and older mothers of illegitimate white infants, substantial reductions in perinatal rates occurred. Postneonatal death rates, on the other hand, were higher during the latter period for both white and non-white illegitimate infants born of older women.

For all race-legitimacy groups the mean maternal age for live births was lower during the latter period of study. The drop in maternal age was least among white illegitimate births, the average decreasing from 22.1 years during 1957-1961 to 21.8 years for 1962-1966. Among legitimate babies, the average maternal age was six months less during the latter five years.

These changes in the maternal age distribution of legitimate and illegitimate live births are shown in Figure 3. Higher proportions of both legitimate and illegitimate births occurred among younger women during the latter period of study.

Birth order

Mortality rates by race-legitimacy status

and birth order are shown in Table 5 and graphically in Figure 4. While reductions in both perinatal and postneonatal mortality occurred among infants of first birth order in all race-legitimacy groups, increased rates are observed for some non-first birth order categories, particularly among illegitimate infants. For white illegitimate infants more than for other groups, increases and decreases in rates were erratic across the birth order distribution. This was due, in part at least, to small numbers of cases above the first birth order.

On the average, birth order was slightly lower during 1962-1966 in all race-legitimacy groups except white illegitimate infants. In that group, the mean birth order of live births remained at 1.7.

Summary

The increase in illegitimacy in North Carolina during the past several years, while less dramatic than in the United States as a whole, is none the less of great concern. From 1957 to 1966 the ratio of white illegitimacy rose 67%, while the nonwhite ratio increased 31%.

Concurrently the state's perinatal and postneonatal mortality rates have dropped. These improvements occurred among all race-legitimacy groups, with the greatest strides being made among white illegitimate infants.

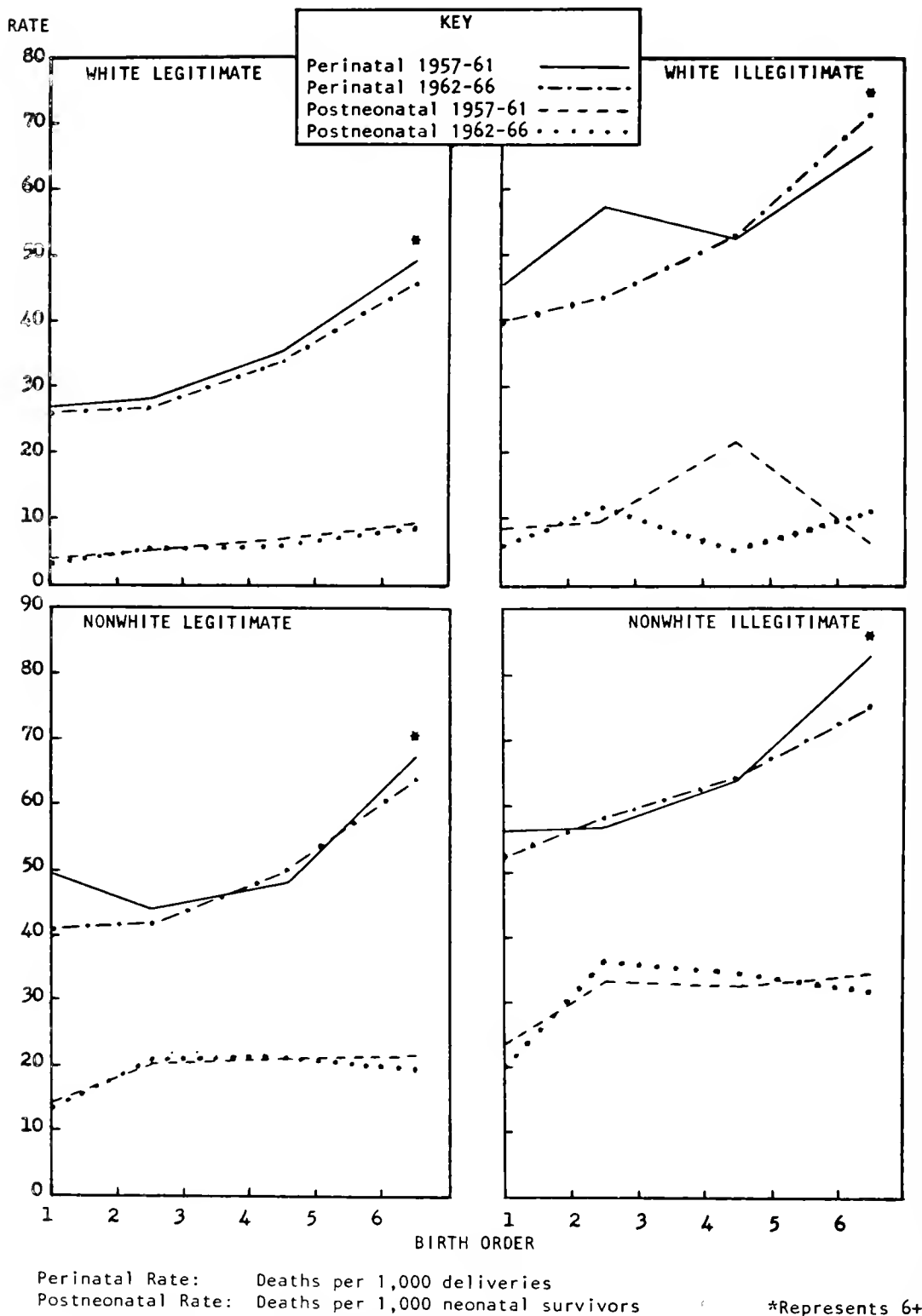


Fig. 4. Perinatal and postneonatal death rates by legitimacy, race, and birth order
 North Carolina, 1957-1961 and 1962-1966

When the five-year average rates for 1957-1961 and 1962-1966 are compared, declines in postneonatal mortality were greater than reductions in perinatal mortality. This experience was true for all race-legitimacy groups except nonwhite legitimate infants, among whom perinatal declines were greater.

While mortality generally decreased in most birth-weight categories, areas of improvement in perinatal and postneonatal mortality were different. Decreases in perinatal rates were least among very small infants (1,500 gm or less), as might be expected, and generally good for infants who weighed more. Declines in postneonatal rates, on the other hand, were considerable for very small infants, with smaller reductions in the higher weight categories. For white illegitimate infants, of course, reductions in both perinatal and postneonatal rates were most impressive among infants whose birth weight was high.

Maternal age-specific rates indicate little change except for declines in perinatal mortality and increases in postneonatal mortality among illegitimate infants born to older women. Reductions in both perinatal and postneonatal mortality occurred consistently among first-born infants, regard-

less of race and legitimacy, while rates increased for some non-first birth orders.

Birth weight, maternal age, and birth order were, on the average, lower during 1962-1966 than in the earlier period. White illegitimate infants were the exception; the mean weight of that group was slightly higher during the last five years. Among white illegitimate infants also, birth order showed no change, and the drop in the mean maternal age was less than the decrease observed among other race-legitimacy groups. These factors may have contributed to the greater improvement in mortality experienced by this group.

Altogether, these changes in legitimacy status and associated mortality may reflect changes in socio-economic conditions. Undoubtedly, permissive attitudes have contributed to the rise in illegitimacy, and these attitudes may be less confined to the lower social classes than formerly. Improvements in mortality among white illegitimate infants and firstborn infants, as well as the improvements in postneonatal mortality in recent years are probably related to the socio-economic factor.

Reference

1. Vital Statistics of the United States, Vol. 1, Fatality, U. S. Public Health Service, National Vital Statistics Division, 1966 (preliminary report).

This disease [erysipelas], which in some parts of Britain is called the rose, attacks persons at any period of life, but is most common between the age of thirty and forty. Persons of a sanguine or plethoric habit, are most liable to it. It often attacks young people, and pregnant women; and such as have once been afflicted with it, are very liable to have it again. Sometimes it is a primary disease, and at other times only a symptom of some other malady. Every part of the body is liable to be attacked by an erysipelas, but it most frequently seizes the legs or face, especially the latter. It is most common in autumn, or when hot weather is succeeded by cold and wet.—William Buchan: Domestic Medicine, or a Treatise on the Prevention and Cure of Diseases by Regimen and Simple Medicines, etc., Philadelphia, Richard Folwell, 1799, p. 188.

Maternal Deaths from Infection in North Carolina 1946-1965

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Today, infection is the second most frequent cause of maternal deaths in North Carolina. Of the major obstetric causes of maternal deaths surveyed earlier,¹ infection was the only one which did not decline in absolute incidence. Thus the relative frequency of deaths from infection increased from 4.6% in 1946-1950 to 11.8% in 1961-65. This occurred while medical care in general, and antibiotic therapy, bacteriologic laboratories, and nutritional and supportive measures in particular, were improved markedly. One would have assumed that these measures would have decreased the incidence of deaths from infection. Therefore the purpose of this paper is to present and analyze these deaths in an attempt to determine methods for their prevention.

Material and Methods

Methods of analysis of maternal deaths in North Carolina from August 1, 1946, through December 31, 1965, have been presented previously.¹ Of the 2,737 deaths recorded, 6.8% were attributed directly to obstetric infection. Analysis of these 185 deaths provides the basis of this paper.

Results

Direct obstetric death rates and death rates from infection from 1946-1950 to 1961-1965 are compared in Figure 1. A progressive decline occurred in direct obstetric deaths in each successive five-year period. However, the rate of deaths from infection remained almost constant at 1.0 death per 10,000 live births. There was only a slight decline in the two middle periods, due to the decrease in the rate of deaths beyond 20 weeks gestation (Table 1, Fig. 1).

The number of deaths associated with the duration and complications of pregnancy are presented in Tables 1 and 2. A criminal abor-

tion was recorded only if a definite history or evidence of intervention was present. Admittedly some, or many, of the "spontaneous" abortions resulted from criminal interference. Thus, from 25% to more than 50% of all maternal deaths from infection probably were related to criminal manipulation.

Of the women beyond 20 weeks' gestation, all but 11 were in the third trimester. The majority of these died postpartum, although 8 died before delivery. The duration of ruptured membranes before delivery in these cases is compared in Table 3. This information was either not obtained or not recorded in almost one-half of cases prior to 1956 but was reported with increasing frequency thereafter. In the 1961-1965 period, 50% of women dying after 20 weeks' gestation had ruptured membranes for more than 48 hours prior to delivery.

In most maternal deaths from infection, the causative organism was unknown. (Table

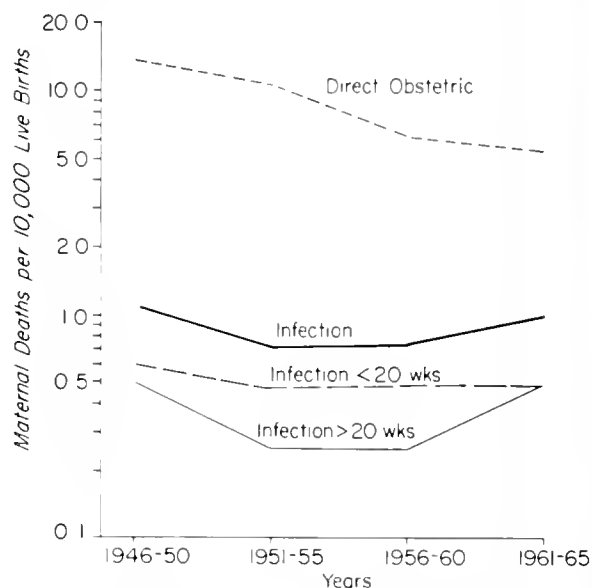


Fig. 1. Semi-log graph of maternal deaths from infection in North Carolina compared with those from all direct obstetric causes. While direct obstetric deaths have declined steadily, deaths from infection remained almost constant, the major variation occurring in patients beyond 20 weeks of gestation.

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Table 1

Relationship of Maternal Deaths from Infection to Duration of Pregnancy

Duration	1946-1950		1951-1955		1956-1960		1961-1965	
	No.	%	No.	%	No.	%	No.	%
Less than 20 weeks	28	53.8	26	65.0	27	65.9	26	50.0
More than 20 weeks	24	46.2	14	35.0	14	34.1	26	50.0
Total	52	100.0	40	100.0	41	100.0	52	100.0

Table 2

Complications of Pregnancy in Maternal Deaths from Infection
Less Than 20 Weeks of Gestation

Complication	1946-1950		1951-1955		1956-1960		1961-1965	
	No.	%*	No.	%*	No.	%*	No.	%*
Abortion	27	51.9	26	60.0	25	61.0	23	44.2
"Spontaneous"	16	30.8	14	35.0	7	17.0	13	25.0
Criminal	9	17.3	10	25.0	18	44.0	10	19.2
Therapeutic	2	3.8	0	0.0	0	0.0	0	0.0
Ectopic Pregnancy	1	1.9	2	5.0	2	4.9	3	5.8
Total	28	53.8	26	65.0	27	65.9	26	50.0

*Per cent of all maternal deaths from infection

Table 3

Duration of Ruptured Membranes in Maternal Deaths Occurring
After 20 Weeks of Gestation

Hours before Delivery	1946-1950		1951-1955		1956-1960		1961-1965	
	No.	%	No.	%	No.	%	No.	%
0 (intact)	0	0.0	0	0.0	3	21.4	2	7.7
Less than 24	5	20.8	3	21.4	2	14.4	5	19.3
25 - 48	1	4.2	1	7.2	1	7.2	3	11.5
Over 48	8	33.3	3	21.4	4	28.5	13	50.0
Unknown	10	41.7	7	50.0	4	28.5	3	11.5
Total	24	100.0	14	100.0	14	100.0	26	100.0

4). Definite bacteriologic diagnoses were recorded in only 30.1% of cases in the last 10 years. Some of these were made at autopsy and thus were of no benefit in the management of these cases. Coliform bacteria were identified in 14 patients, *Clostridium welchii* in 8, staphylococcus in 8, hemolytic streptococcus in 4, anaerobic streptococcus and bacteroides in 2 respectively, and *Proteus vulgaris* in 1. Other cultures were merely reported as "positive." Because of the small numbers involved, further analysis was not meaningful.

The various methods of treatment are listed in Table 5. Antibiotics were used most frequently and were administered to all patients who were not moribund when first given medical attention. Information concerning the type, dosage, and duration of antibiotic therapy was lacking in many instances, thus prohibiting further analysis. Cortisone and vasopressors were used more frequently from 1956 to 1965, coinciding with an increased incidence of septic shock (Table 6). Although surgical measures were

used more frequently in each successive period, minor procedures such as dilatation and curettage and drainage of an abscess predominated. Major surgery was used infrequently, only 7 hysterectomies being performed during the 20-year period.

Contributing factors were recorded in 39.4% of these cases. Hemorrhage was present in 15.7%, anemia in 7.6%, and toxemia in 5.4%. Other medical factors such as renal disease, rheumatic fever, and pulmonary embolus occurred in 8.6%. In 112 of the 185 deaths, however, no contributing factors were evident, and in the most recent five years studied, 77% of the deaths were due solely to obstetric infection.

The major manifestations of infection causing deaths are listed in Table 6. Septic shock was not recognized prior to 1956, yet it was the main cause of death in the final five years of this analysis. It was associated with abortion in 9 of the 11 instances recorded in the period 1956-1960, and in 12 instances recorded during 1961-1965. From the available data it could not be ascertained

Table 4
Frequency of Bacteriological Diagnosis by Culture

Organism	1946-1950		1951-1955		1956-1960		1961-1965	
	No.	%	No.	%	No.	%	No.	%
Known	7	13.4	6	15.0	12	29.3	16	30.8
Unknown	45	86.6	34	85.0	29	70.7	36	69.2
Total	52	100.0	40	100.0	41	100.0	52	100.0

Table 5
Major Methods of Treatment for Maternal Infection

Treatment	1946-1950		1951-1955		1956-1960		1961-1965	
	No.	%	No.	%	No.	%	No.	%
Antibiotics	27	52.0	35	87.5	27	65.9	43	82.7
Blood	17	32.7	18	45.0	15	36.6	19	36.6
Cortisone	—	—	2	5.0	7	17.0	8	15.4
Vasopressors	—	—	—	—	9	22.0	20	38.5
Antitoxin	2	3.8	1	2.5	3	7.3	1	1.9
Surgical	13	25.0	14	35.0	18	44.0	29	55.8

Table 6
Manifestations of Infection Causing Maternal Deaths

	1946-1950		1951-1955		1956-1960		1961-1965	
	No.	%	No.	%	No.	%	No.	%
Sepsis	28	54.0	21	52.5	9	22.0	9	17.3
Peritonitis	16	30.8	11	27.5	8	19.5	9	17.3
Abscess	2	3.8	4	10.0	4	9.8	5	9.6
Septic shock	—	—	—	—	11	26.7	22	42.3
Anuria	2	3.8	1	2.5	3	7.3	1	1.9
Emboli	2	3.8	1	2.5	—	—	—	—
Other	1	1.9	2	5.0	4	9.8	3	5.8
Undetermined	1	1.9	—	—	2	4.9	3	5.8
Total	52	100.0	40	100.0	41	100.0	52	100.0

whether this increase in the incidence of septic shock was due only to more accurate diagnosis, or whether an actual increase in the number of cases also occurred. Generalized sepsis, peritonitis, and large abscesses were the other principal complications resulting in death.

Comment

In North Carolina approximately 10 maternal deaths result annually from either septic abortion or from obstetric infection in women beyond 20 weeks gestation. Whether social and cultural changes, with increased availability and acceptance of contraception and more permissive indications for sterilization and induced abortion, will decrease the number of deaths from septic abortion has not been established. From the 20-year experience in North Carolina, there is no evidence that this is happening. A recent Swedish study found that the incidence of criminal abortion was not related to that of legal abortion.⁴ Thus more liberal legislation for induced abortion should not be expected to decrease the incidence of criminal

abortion significantly, and may never be instrumental in decreasing the accompanying maternal mortality. It would seem that criminal abortion is primarily a social problem, so that a reduction in the frequency of septic deaths from this cause must depend upon improved management of the condition once it is encountered. On the contrary, obstetric infection during the last half of pregnancy usually develops during medical observation and is therefore more amenable to improvement. As demonstrated in the two middle periods of this study (Table 1, Fig. 1), a reduction in the frequency of these deaths, which now comprise one-half of the total mortality from infection, would decrease the death rate significantly.

Premature rupture of the membranes

Proper management of the patient with ruptured membranes is essential for the prevention of maternal deaths from infection. This applies not only to the patient whose membranes rupture during prolonged or dystocic labor, but also to women whose membranes rupture before the onset of labor.

Premature rupture of the membranes more than 24 hours prior to delivery is associated with increased maternal and fetal morbidity. The incidence of such morbidity is proportionate to the length of time the membranes were ruptured before delivery.^{5,8,10} Yet, in the last five years of this study, 50% of deaths occurring after 20 weeks' gestation followed rupture of membranes 48 hours or more before delivery. This delay is readily correctible and would appear to be the most easily preventable factor in this series, for induction of labor with intravenous oxytocin is usually effective, prevents delay in delivery, and reduces the incidence of uterine infection.

More than 80% of all women near term will begin labor within 24 hours of rupture of the membranes.⁹ For the patient at or beyond 36 weeks' gestation, there should be no hesitancy to induce labor after 24 hours. If there is no response to oxytocin, delivery by cesarean section must be considered and is positively indicated with the first evidence of even minimal febrile morbidity. Although controversy between the expectant and aggressive schools over the management of women with premature rupture of the membranes has not been resolved, there is agreement that any evidence of maternal infection is a positive indication for rapid emptying of the uterus. At earlier stages of gestation, the risk to the infant from prematurity must be weighed against the risk of infection. If expectant management is elected, vaginal examinations and coitus are interdicted, in order to minimize contamination.⁸ The patient is probably safer at home than in the hospital. She should be asked to record her temperature daily and to report any fever promptly. Prior to the onset of labor, antibiotics are of little prophylactic value against infection.^{5,8} However, when labor begins or if membranes rupture during dystocic labor, antibiotic therapy is indicated. Although such therapy will decrease maternal morbidity and mortality, it has not been shown to improve amnionitis or to reduce perinatal mortality.⁹ In the event of fetal death or the development of amnionitis, delivery should be accomplished promptly.

One-third of maternal deaths from septic shock occurred in women beyond 20 weeks' gestation, usually in association with premature rupture of the membranes. The principles of therapy for this condition will be discussed below.

During dystocic labor, rupture of the membranes hastens the development of uterine infection. In the interest of both the gravid woman and her fetus, the dystocic problem should be resolved before overt evidence of infection develops, particularly if cesarean section is necessary. Too often, conventional cesarean section has been employed in the face of gross uterine infection, the physician relying upon antibiotic therapy to cover this breach of sound obstetric principles. Frequently, proof of the inadequacies of such therapy appeared in this series of maternal deaths. Under the circumstances described, extraperitoneal cesarean section and Porro hysterectomy must be remembered as infrequently used but often vital adjuncts of therapy.

As the danger of prolonged rupture of membranes is recognized, it becomes evident that amniotomy cannot be performed casually to initiate or stimulate labor. This procedure commits the physician to accomplish delivery within 24 hours. Otherwise, amniotomy becomes a needless iatrogenic factor which has resulted in lethal uterine infection.

Septic abortion

The mortality from septic abortion can be reduced when all cases are managed as if criminally induced. A Gram stain of cervical secretions aids in initiating appropriate antibiotic therapy. At the same time a uterine culture should be obtained for definitive bacteriologic diagnosis and sensitivity studies. Flat and upright x-ray films of the abdomen should be made to exclude intra-abdominal free air and foreign bodies.

Transfusion with whole blood is indicated when anemia or hemorrhage or both are complicating factors. Oxytocin and ergot preparations are of value in expelling infected products of conception and in keeping an infected uterus well contracted. In addition, surgical removal of the focus of infection should be accomplished by curettage within

12 to 24 hours. Hysterectomy is usually not indicated but must be considered and promptly performed if the patient does not respond to these more conservative measures.³ It may be the only treatment for widespread myometritis with multiple abscess formation and necrosis of uterine musculature. Hysterectomy is always indicated in patients with clostridial infection, to remove devitalized tissue which enhances growth of this organism.

Complications

The principal complications from progression of uterine infection are generalized sepsis, peritonitis, and septic shock. The latter, although not recognized until 1956, was the main cause of death in the most recent five years studied, causing 12 postabortal and 10 puerperal deaths. This rise probably represents increased recognition of the condition, since many deaths attributed to infection in the earlier years must have been due to bacterial shock. Treatment of uterine infection, whether puerperal or postabortal, should be directed toward preventing this complication, and corrective measures must be taken promptly if it develops.

The initial difficulty in septic shock is in the microcirculation (arterioles, capillaries, and venules) with stasis, decreased venous return, secondarily decreased cardiac output, and resultant hypotension and oliguria.^{2,7,11,12} Although the clinical picture is varied, there are two main types of shock: primary or reversible and secondary or irreversible.² In the early or "warm" phase of primary shock, the patient is hypotensive, alert, and anxious but has good urinary output and pulse pressure. In the late or "cold" phase she becomes pale and clammy, is less alert, and has a decreased pulse pressure due to falling cardiac output. The development of oliguria is indicative of inadequate renal perfusion. When this phase is inadequately treated, secondary shock develops, with dilation of small vessels from hypoxia and loss of fluid to the extravascular space. In this irreversible phase, fluids and volume replacement will usually result in acute pulmonary edema.

Although the efficacy of antibiotic therapy cannot be denied, the essential treatment

of bacterial shock in obstetric patients is surgical removal of the focus of infection.^{2,3,11} Medical treatment consists of measures to correct acidosis, to improve venous return and cardiac output, and to maintain urinary output.^{2,3,11,12} The latter is measured hourly with an indwelling catheter, and as long as it is more than 30 to 50 ml per hour, "warm" hypotension can be tolerated without vasoconstrictors. A catheter inserted via an upper arm vein is used to monitor central venous pressure so as to avoid circulatory overload. Fluids and blood are replaced in sufficient amounts to maintain venous pressure between 8-15 cm of water. Sodium bicarbonate is added to fluids to correct acidosis. Antibiotics are selected according to organisms on the Gram stain of cervical secretions and are administered intravenously in massive doses (40 to 80 million units of penicillin and 3 to 6 grams of chloramphenicol daily).^{2,11,12} Pharmacological doses of corticosteroids have been recommended for their inotropic effect (hydrocortisone, 50 mg/kg daily, dexamethasone, 3.0 mg/kg daily, or methylprednisolone, 15 mg/kg daily).^{2,6} Vasopressors such as metaraminol are used for the patient with "warm" hypotension to maintain urinary output above 30 ml per hour by keeping systolic pressure at the lower limit. The patient with "cold" hypotension will probably respond better to further fluid therapy and vasodilators, such as intravenous chlorpromazine or isoproterenol.^{2,7,11,12} In addition, isoproterenol has an inotropic effect but may produce arrhythmias when there is tachycardia above 120 beats per minute.

Vasopressors were used in an attempt to maintain blood pressure in almost 40% of deaths in the last five years of this study. These may actually have compounded the problem by further increasing vasoconstriction when maximal constriction was already present, thus further reducing venous return and contributing to hypotension, hypoxia, and oliguria.

Summary

The absolute frequency of maternal deaths from infection in North Carolina has not changed significantly from 1946 to 1965. These deaths were distributed about equally

in the first and second halves of pregnancy, occurring predominantly in patients with septic abortion and those with prolonged rupture of the membranes. The data indicate that death rates from the latter, usually a physician-controlled condition, are more readily amenable to improvement than those from septic abortion which are predominantly a social problem resulting from criminal interference. Principles of management of these conditions are discussed.

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Enlargement of the Submaxillary Gland

EDWARD F. SHAVER, JR., M.D.

eases of the parotid gland and its enlargement have frequently appeared in the literature. Lesions of the submaxillary salivary gland, however, have received little attention, possibly because the incidence of tumor is much less common than in the parotid, but certainly not because clinical enlargement is any less frequently seen.

A series of 98 cases in which enlargement of the submaxillary gland was a major complaint will be presented. In each case the gland was surgically removed, and the results of pathological examination, as well as symptoms and physical findings, will be noted.

Of the total number of cases, 88 showed chronic inflammation, and 10 showed involvement by tumor.

Males and females were equally affected in the chronic inflammation group. Though a somewhat higher incidence of involvement was noted in those patients over 40 years of age, chronic inflammation was found in all age groups after the first decade (Table 1).

Numerous publications dealing with dis-

Table 1

Distribution According to Age and Sex
Age in Years

Sex	10-20	21-30	31-40	41-50	51-60	61-over	Total
Male	2	4	9	13	6	10	44
Female	3	9	4	10	11	7	44

Localized pain and swelling were the chief complaints of most patients. Many had exacerbations and remissions; some associated the pain and swelling with meals, while in others these symptoms were a constant source of discomfort. Less frequent complaints were dysphagia and pain radiating to the ear.

Glandular enlargement was noted to a degree in all cases, and was of an unusually hard or firm consistency in 36 cases. In only 3 cases could fluctuance be demonstrated. Limited mobility was noted in 2 cases: one in which the gland appeared to be adherent to the overlying skin and subcutaneous tissues, and one in which there was adherence to the deeper underlying structures. Palpation of the gland revealed moderate to marked tenderness in 25 cases. Edema and induration of the floor of the mouth were seen in 13. Purulent secretions from Whar-

ton's duct were obtained by massage in 86 per cent of the cases. Beta hemolytic *Streptococcus*; alpha hemolytic *Streptococcus*; *Staphylococcus aureus*, coagulase positive and negative; *Escherichia coli*; and *Hemophilus influenzae* were the organisms most frequently cultured from this material.

Of the 88 cases with chronic inflammation upon pathological examination, calculi were found in 65. At the time of clinical evaluation, bimanual palpation revealed the presence of stones in only 25 of these cases. X-ray films taken prior to surgical removal of the gland revealed radiopaque stones in 50 cases, and with the use of sialographic techniques in five additional cases, radiolucent stones were noted. There were 10 cases in which stones, though present, could not be demonstrated (Table 2).

Table 2

Incidence of Calculi and Technique of Demonstration			
No calculi in gland or duct	23	26%	
Calculi in gland or duct	65	74%	
Calculi noted on bimanual palpation	25	40%	
Calculi demonstrated by x-ray	50	77%	
Calculi demonstrated by sialography	5	8%	
Calculi not demonstrated	10	15%	

There was considerable variation as to the location and number of stones in each case. They were found in the duct in 36 cases, in the gland in 19 cases and at the junctions of the duct and gland in 10 cases. Though only one stone was present in the majority of cases, multiple stones were not an uncommon finding.

The duration of complaints ranged from one week to ten years, but approximately 75 per cent of these cases were treated by surgical removal of the infected gland within a three-year period after the onset of symptoms. Many of the long-standing cases had been managed conservatively for varying periods of time. In 24 cases (27 per cent), previous treatment consisted of removal of stones from the submaxillary gland or its duct. Reformation of the stones occurred in each case, with a recurrence in 75 per cent of the cases within three years after removal.

In all instances, the submaxillary salivary gland was resected with no complications

during or following removal, and all patients have remained free from symptoms to date.

Five benign and five malignant lesions comprise the 16 cases showing involvement by tumor. The benign lesions include three mixed tumors, one hemangioma, and one case of sarcoidosis. Two adenocarcinomas, one malignant mixed tumor, one Hodgkin's paraganuloma, and one fibrosarcoma comprise the malignant group (Table 3).

Constant swelling in the submaxillary salivary gland was the major complaint in all of these cases except one case of adenocarcinoma, in which the swelling was recurrent and accompanied by pain. Pain was also noted in the second case of adenocarcinoma and in that of the hemangioma, but it was of a persistent rather than a recurrent nature.

On physical examination the involved gland was found to be clinically enlarged, with a firm to hard consistency in each instance. The surface contour of each gland was relatively smooth and regular, and in no cases were limitations of mobility or tenderness noted. There was no evidence of infection at the time of examination, but in several cases past histories revealed an acute infectious process superimposed upon a gland involved by tumor. Though no stones were palpable, x-ray examination revealed the presence of one stone in the case of hemangiomatous involvement. In no instance was cervical adenopathy noted.

The 3 cases of benign mixed tumor, one case of hemangioma and one of malignant mixed tumor have been observed for three or more years following total excision of the gland, with no evidence of recurrent disease. The patients in whom sarcoidosis, Hodgkin's paraganuloma, and fibrosarcoma were diagnosed have failed to return for follow-up care. One patient having adenocarcinoma treated by a combination of radical surgery and radiation therapy had no evidence of recurrent disease four years after treatment. A second patient with adenocarcinoma treated by radical surgery had a recurrence of his disease two years following surgery.

Table 3
Classification of Tumors As to Age, Sex,
Chief Complaint and Duration of Complaint

Tumor	Age	Sex	Duration	Chief Complaint
Benign mixed tumor	20	F	2 years	Mass in neck
Benign mixed tumor	31	F	6 years	Mass in neck
Benign mixed tumor	59	F	3 years	Mass in neck
Hemangioma	30	M	1 year	Pain and swelling in neck
Sarcoid	53	F	Unknown	Mass in neck
Adenocarcinoma	47	M	15 years	Persistent painful swelling
Adenocarcinoma	55	M	2 months	Mass in neck
Malignant mixed tumor	34	M	3 months	Mass in neck
Hodgkin's paraganuloma	47	M	8 years	Mass in neck
Fibrosarcoma	14	M	1 month	Mass in neck

Comment

Persistent, progressive, or recurrent enlargement of the submaxillary salivary gland with or without other signs or symptoms is not uncommon. The incidence of tumor involvement may be as high as 10 per cent in these cases, as indicated in this series; consequently, this clinical finding certainly deserves a thorough investigation.

Although it may be easy to differentiate between tumor and infectious involvement of the submaxillary salivary gland in most cases, in some the distinction is most difficult to make. Both conditions are commonly seen in the 30- to 60-year age group. Though pain is most often associated with infection, it is by no means exclusively so, and may sometimes be encountered in the early as well as the later stages of tumor growth. Recurrent pain or swelling (whether or not associated with eating), edema and induration of the floor of the mouth, purulent secretions, and the presence of calculi are certainly most characteristic of infection, but these findings may also be associated with an infectious process complicating a gland invaded by tumor. Limitations of mobility due to adherence to the deeper underlying structures or to the overlying skin and subcutaneous tissues may also be seen with either infection or tumor invasion. Fixation, however, is much more indicative of the latter. Though tumors or infections may produce generalized enlargement of the gland with a smooth, regular outline, and may be firm to hard in consistency, tumors are usually more irregular and lobulated in contour. Radiographic techniques, including sialography, may sometimes be of value in

differentiating between these two pathological entities.

In most cases of long-standing infection, the submaxillary gland will contain one or more stones, either in its parenchyma or duct. The presence of stones may sometimes be demonstrated by bimanual palpation, but radiological techniques, including sialography, appear to be the most reliable methods for diagnosing sialolithiasis.

Summary

A series of 98 cases has been presented in which persistent, progressive or recurrent enlargement of the submaxillary salivary gland was the chief complaint. The symptoms, physical findings, and diagnosis on pathological examination have been noted in each case. Of the total number, 88 cases showed chronic inflammation, and 10 cases showed involvement by tumor. In all cases marked by chronic inflammation, the submaxillary salivary gland was surgically resected, with no complications during or following removal, and all patients have remained asymptomatic to date. In those cases with benign tumor involvement, resection of the gland has also rendered all patients free from disease, except one case in which the prognosis could not be determined because of failure of the patient to return for evaluation. Two patients with malignant disease have remained free of any evidence of recurrence, one for three years and the other for four years following treatment. One patient with adenocarcinoma of the submaxillary gland had a recurrence of the disease after initial treatment. Two other patients with malignant lesions failed to return for observation.

A careful evaluation of the clinically enlarged submaxillary salivary gland is most important for the early detection of salivary gland tumors or irreversible infections. Only through such means can we hope to contribute to the patient's well-being.

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Neurology, Neurosurgery, and the Regional Health System Of Western North Carolina

CAPERS SMITH, M.D.*

"I Came. I Saw . . ."

Carefully manicured spacious lawns climb lazily over hilly land toward the bases of majestic lindens, maples, oaks, cedars, and myriad shrubs. The imposing silver dome and quaint dormers of the Center Building overlook the valley, surprising the casual visitor lost in the enchanting, natural beauty of the grounds. Upon entering this pleasing, clean late Victorian building through its heavy cathedral doors, the visitor finds at his feet the magnificent mosaic of the great seal of the State of North Carolina. From beneath ceilings 30 feet high, he walks under the curvature of the strong bronze and oak semi-circular staircase, and feels small in the expanse of the great hall. If at all perceptive, he is impressed immediately by the friendly people who invariably recognize the stranger and go out of their way to help him.

When first I came to Morganton I saw this beauty and these gentle people. I saw, too, the surrounding mountains beginning to flame into glorious color; yet when offered the job of director of the Department of Neurology at Broughton Hospital, I turned it down.

Following four years of army service I practiced internal medicine, then neurology, for 22 years in Charleston, South Carolina, my native home. "Nobody ever leaves Charleston"; so, despite the beauty and the kindly people, I had not found sufficient reason to break the tradition.

Happily for my family and me, the superintendent of Broughton Hospital, Dr. Olen I. Freeman, Jr., is a pleasantly persistent man. He told me of his philosophy and of his ambition to invigorate the hospital by recruiting adequate numbers of well trained, well motivated, and experienced professional staff members. I was offered the job of developing a neuromedical-surgical department for Broughton Hospital and the Western Region of the Department of Mental Health, to render psychiatric, medical, and surgical care of excellence to the mentally ill of this region.

At the age of 53, I should have been happy enough with the status quo, doing a bit of teaching and seeing several patients daily in a referred practice of neurology. The flag had been dropped. I snatched it up. I came, I saw . . . and I like what I see: the cold challenges, the warmth of good people, and the opportunity to serve them as they have not before been served.

The Need

In 1967 Paulson and Gupton¹ reported: ". . . fifty per cent of all hospital beds are in mental hospitals, and thirty to fifty per cent of these beds are occupied with patients with organic brain disease . . . It is our opinion that despite such difficulties, a neurologic service in a mental hospital can be extremely fruitful and is indicated for the optimal care of patients with organic disease."

During the two-year period prior to publication of their report, these investigators found that of the 687 consultations at Doro-

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thea Dix Hospital, Raleigh (2,300 beds), 576 of the patients had unequivocal organic disease. Diagnoses included tumor, 20; convulsive disorders, 189; degenerative diseases of the central nervous system, 109; vascular disorders, 76; infection, 16; developmental disorders, 41; toxic or metabolic disease, 62; demyelinating disease, 7; unknown, undiagnosed, 62.

Only 49 of the patients examined were found to have "functional" or "psychiatric" disorders, and 56 were diagnosed as having traumatic disorders of the central nervous system. In the figures cited, I have subtracted from the total number of patients those who were listed as unknown, undiagnosed, or as having "functional and psychiatric disorders."

At Broughton Hospital (2,300 patients), the state hospital for the mentally ill of the 30 western counties of North Carolina, a careful surface census revealed that there were 288 patients with convulsive disorders. How many of these have either benign or malignant tumors? Subdural hematomas? Or, how many can be controlled with careful regulation of medication? And how many can be helped toward productive positions in their communities by careful multi-disciplined management? We shall never know until the state provides means for proper comprehensive evaluation and treatment.

Dr. Eugene A. Hargrove, Commissioner of the Department of Mental Health, wrote to me on January 7, 1969:

. . . I would like to re-emphasize my deep interest in seeing the development of a comprehensive neurological service in Broughton Hospital. This is reflected in my memo of July 10, 1968, and the meeting we had at Broughton on October 30, 1968, as well as the conversations we have had in the recent past. . . Clarification on the questions as to whether patients would have to be formally committed to Broughton Hospital for approved neurological services . . . the answer is no.

In September, 1968 the Mental Health Department moved to meet this need for neuromedical-surgical services by creating the position of director, Department of Neurology, Broughton Hospital, and consulting neurologist for North Carolina's 30 western counties. Recognizing that the

neurologist functions poorly at best without the readily available services of a neurosurgeon, the Department of Mental Health and the Regional Health Council of Eastern Appalachia, Inc. have provided funds to make possible a mutually advantageous arrangement with the Department of Neurosurgery, Bowman Gray School of Medicine. The Commissioner's letter thus cleared the way for the full development of the first full-time neuromedical-neurosurgical service within North Carolina's system of mental hospitals.

Prior to the establishment of this department, which will be community-oriented, Broughton Hospital, Western Carolina Center, and the more than 160,000 people in Alexander, Burke, Caldwell, and McDowell counties had, of necessity, to look toward Winston-Salem (100 miles distant), Charlotte (68 miles distant), or Asheville (about 60 miles distant), for neurological help. In this four-county region, triangulated by the three cities mentioned, there was until recently only one pediatric neurologist. He and the dedicated consulting neurologist in Charlotte provided the only neurological service available to the hospital. There are now two other neurologists.

Planned Services

This neurological-neurosurgical program is being based at Broughton Hospital because of the support of the Department of Mental Health in concert with the Regional Health Council of Eastern Appalachia, Inc. Initially this project will be a component of the Comprehensive Regional Health plan of the Council. With successful operation, it is anticipated that an increased staff will be necessary and that the program will move outward to offer its services to the entire 30 counties of the Western Region of the Mental Health Department. At its start the program will offer the following services to the people of Alexander, Burke, Caldwell, and McDowell counties:

1. Outpatient Consultation clinic, general neurology, weekly. Patients seen by appointment, on referral only from private physicians, county and state agencies.
2. Outpatient clinic for evaluation and comprehensive management of convulsive disorders in both children and adults, weekly. Patients will be

seen by appointment, on referral from private physicians and stage agencies.

3. Outpatient consultation clinic in neurosurgery, weekly. Patients seen by appointment, on referral.
4. Inpatient neurological care unit for cases that cannot be handled on an outpatient basis.
5. Instructional conferences for staff physicians of Broughton Hospital, Western Carolina Center, and Grace, Valdeuse General, Caldwell County, Dula, Blackwelder hospitals, and others. It is hoped that medical societies in the Western Region will also participate.
 - a. Neurology (adult and pediatric) weekly.
 - b. Neurosurgery, weekly.
 - c. Neuroradiology, weekly.
 - d. Working multi-discipline conferences on epilepsy, a joint undertaking of Broughton Hospital, Western Carolina Center, and the community hospitals of four counties; monthly.
 - e. Cerebrovascular disorders, weekly: a combined effort of the neurological, neurosurgical, psychiatric, and radiological departments of the communities.
 - f. "Clinical Circus," held bimonthly, initially, with participation of all departments at Broughton, Western Carolina Center, and community hospitals.
6. Lectures and demonstrations held regularly for nurses at Broughton Hospital Western Center, and other hospitals of the Western Region.

In the 30 counties of the Western Region of North Carolina there is an estimated population of 1,600,000. There is no medical school nearby to provide the services planned. With the help and talents of medical and paramedical disciplines within this region, it is reasonable that the state exert effort to support the development of this worthwhile and long overdue neurological program in the Western Region of North Carolina.

By nature I am no Pollyanna, but there is now good reason to be optimistic, because of the expressed support for such a project by the Commissioner of Mental Health, his deputy for the Western Region, the superintendent of Broughton Hospital and Western Carolina Center, as well as the Bowman

Gray School of Medicine, the chief of medicine and the president of the staff of Grace Hospital in Morganton and the chairman of the Council for Eastern Appalachia. Money is available for realistic salaries for neurologists, psychiatrists, internists, a general surgeon, psychologists, and social workers. These people are needed now for Broughton Hospital.

Summary

1. North Carolina's Department of Mental Health has recognized the need for the development of a neurology-neurosurgical department to serve its Western Region.
2. It has joined its resources with those of the Section on Neurological Surgery, the Bowman Gray School of Medicine, and the Regional Health Council of Eastern Appalachia, Inc. to expedite proper pursuit of this project.
3. Personnel of Broughton Hospital, Western Carolina Center, and Bowman Gray School of Medicine are staffing this project. The services are being offered, initially, to the counties of Burke, Caldwell, Alexander and McDowell. With successful demonstration, it is expected that the program will be made available to the remaining 26 westernmost counties.

Addendum

"I came" from the ocean to make my home in these lovely mountains amongst their fine people. "I saw" the type of challenge that bristles for lack of attention.

"I came. I saw . . ." With the help of qualified people, there appears no end to the challenge and endless opportunity.

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JUNE, 1969

THE ONE HUNDRED FIFTEENTH ANNUAL SESSION

Initiated by a day-long meeting of the Executive Council, the Third Annual Session since the return to Pinehurst was marked by acceptable Sandhills weather and improved attendance at general sessions and section assemblies, albeit there were still too many empty seats. A modified format, permitting staggered specialty section and audio-visual programs between morning and afternoon hours, limited general sessions on Monday and Tuesday to the hours 11 A.M. to 1 P.M. and provided greater variety of choice to those in attendance.

A comprehensive and entertaining discussion of the State's new Medical Examiner System featured Monday's General Session. One hundred thirty-five physician medical examiners have been assigned in 34 counties by their respective county societies.

The Tuesday Session featured an address by Dr. Dwight L. Wilbur, President of the A.M.A., stressing the need for medical leadership in a changing society, a theme which pervaded the speeches of the retiring and new presidents of the State Society. The profession, faced with a growing manpower deficit, must assume responsibilities in medical education and in the training and supervision of allied personnel in both old and newly developing categories.

Significant actions resulted from the deliberations of the Executive Council and the House of Delegates. A total of 18 resolutions and four additional items, either referred from the Executive Council or directed by the House, were considered in open meetings of two reference committees appointed by the Speaker. The value of Reference Committee hearings, open to all members of the Society, was manifest in the dispatch with which the House disposed of the 23 issues, approving 19 and rejecting 3, all as recommended by the references committees with minor changes.

Among the important actions were By-Law provisions creating a new commission concerned with government-sponsored health programs and a new standing Committee on Medical Education. To this latter committee was referred for study a resolution concerned with the training of physicians' assistants, a program now conducted at Duke University.

A request from the Committee on the Headquarters Facility for authorization to provide adequate substructure to permit the possible future addition of two stories to the presently planned two story building was approved on the condition that the cost not exceed the anticipated monies to be realized from sources already approved by the House of Delegates.

An attractive model of the Headquarters Building on display at the meeting gave evi-

dence of progress in planning and construction of the long-awaited facility.

A request from the Nominating Committee for an ad hoc committee to study tenure of committee and board assignments of the Society was approved.

Attention was given to traffic safety through a panel discussion at Wednesday's General Session, and the House approved a resolution supporting the enactment of an "Implied Consent" law by the North Carolina General Assembly.

The House received the report of the Ad Hoc Committee on the Relationship of the Medical Society to the North Carolina Blue Cross-Blue Shield, Inc., and approved its recommendations with minor amendments. The burden of this report was concerned with mechanisms for improved communication and closer liaison of all bodies involved in physician services under Blue Shield. Specific proposals of this Committee approved by the House of Delegates were a new Statement of Understanding eliminating physicians participating agreements and a new by-law providing for the election of an enlarged Blue Shield Committee, assuring broader geographic and practice representation.

As might be expected, the Reference Committee discussion of a resolution questioning the endorsement of sex education programs being conducted in North Carolina schools was well attended. The resolution was not accepted. Instead, approval of the Family Life Program in public schools was reaffirmed with the stipulation that materials used should be adequately monitored, giving proper attention to moral issues.

President David Welton's year has been one of intense activity, marked by a record number of called meetings of the Executive Council to handle pressing issues. Under his direction, communication with the membership reached a new high. The year ahead promises to be no less busy. As the cloak of office passes to Ed Beddingfield, "Itinerate Legislator," the membership is assured of competent leadership.

J.S.R.

WHO WILL WORK AT NIGHT?

Some of the more potent forces in our environment, the advertisers of consumer goods, spend a great deal of their effort showing people having a good time, usually in the evening and on weekends. The emphasis in advertising of such items as boats, camping equipment, and second homes is naturally geared to the assumption that buyers will have leisure time to use them. With the national work week dipping below the 40-hour level, increasing numbers of people are unwilling, even for premium wages, to devote more than that amount of time to their job. And when the job is one which requires the person to work at a time when most people are playing, it is hard to find anyone who wants to work even 40 hours. Along with such fields as transportation, public utilities and the guardians of public safety, medicine is feeling the pinch of the leisure-time emphasis in our present society. The American Nurses' Association says that even sums of \$22-\$41 per shift for private duty nursing do not attract many private duty nurses, with less than half the number of such nurses available for duty today than in 1940. Similar problems exist throughout the structure of medicine.

What will be the solution to this vexing problem—which is ultimately a problem for society at large? The fellow who tells his boss he wouldn't dream of delaying a departure for his lake home at 4 p.m. Friday to help out in a pinch expects to find a full nursing, medical, x-ray, and laboratory staff in attendance when he wrecks his car at Saturday midnight. How can he be convinced in advance that he has some responsibility for seeing to it that someone cares enough about him to be on duty when he wrecks? Possibly the upcoming generation of college students, who are allegedly concerned more with human welfare than with money or other items of status, will carry their idealism into the time of their lives when they will be expected to assume responsibility. On the other hand, not a great deal more responsibility has been evident amidst their boisterousness thus far, than existed in the goldfish-swallowing era. Perhaps a combination of more people and automated machinery

will do the trick. The most likely answer may be to allow people on all shifts to work a 5-day, 40-hour week, paying even larger premiums for the inconvenience of being a night owl. Short of compulsion, something not tried outside the military services, one of these things will have to work. Or it may be that society is evolving to the point where bisexual compulsion in the staffing of necessary public services will supersede male compulsion in national defense matters. It would be hard to burn draft cards over the issue of hospital service, and drafting men and women would fit well into current unisex trends.

THE CHINESE RESTAURANT SYNDROME

In 1968, letters to the *New England Journal of Medicine* told of various unwholesome sensations experienced by some diners in Chinese restaurants, and soon thereafter monosodium glutamate (MSG) was proposed as the cause of burning sensations in the skin, pressure over the face, and chest pain, which followed eating a Chinese meal on an empty stomach. Some susceptible persons also have the consistent complaint of headache. In a scholarly paper which recently appeared in *Science* (163:826-828, Feb. 21, 1969), Schaumberg, Byck, Gerstl and Mashman thoroughly establish MSG, probably acting through arterial receptors, as the causative agent of this disorder. When volunteers were given wonton soup containing MSG, under carefully controlled conditions, symptoms were produced after they

had consumed 3 gm. or less of the food additive. The other components of wonton soup, and impurities in the MSG, were satisfactorily ruled out as factors in the illness. Although the mode of action is still uncertain, tests with intravenously administered MSG show that the burning skin sensation can be produced by injections below a tourniquet, indicating peripheral action. The chest pain, which has caused physician-diners to think they were having a myocardial infarction, seems to be produced by MSG action on arterial receptors, for with large intravenous doses some subjects had a burning sensation which traced the course of the major arterial trunks. Even while the chest pain was present, no electrocardiographic changes were present.

Here in North Carolina, with Chinese restaurants few and far between, it might be thought that there is little need to talk about the Chinese restaurant syndrome except to complain about a deficiency of these wonderful dining places. However, there are many residents of the state, some on the JOURNAL staff, who are devoted to this type of cooking, and if the recent fine exhibit of jade at the State Art Museum is any guide, there are many interested in Chinese culture within our borders. Even as short a time as fifteen years ago it was hard to find "Accent," the usual MSG product for the housewife, in the stores of this state. Those days are gone forever, and one has to look for MSG toxicity from Sunset Beach to Sturgills, whenever someone bolts his soup on an empty stomach and commences "catching on fire."

Many attempt to cure a cold by getting drunk. But this, to say no worse of it, is a very hazardous experiment. No doubt it may sometimes succeed, by suddenly restoring the perspiration; but when there is any degree of inflammation, which is frequently the case, strong liquors, instead of removing the malady, increase it. By this means, a common cold may become an inflammatory fever.—William Buchan: *Domestic Medicine, or a Treatise on the Prevention and Cure of Diseases by Regimen and Simple Medicines*, etc., Philadelphia, Richard Folwell, 1799, p. 206.

Monthly Report on Perinatal Mortality

TOTAL DELIVERIES AND PERINATAL DEATHS BY COLOR FOR COUNTIES AND SELECTED CITIES
OF RESIDENCE, WITH RATES PER 1,000 DELIVERIES¹: NORTH CAROLINA,
MARCH 1969 AND MOST RECENT 12-MONTH TOTALS

County	WHITE					NONWHITE					County	WHITE					NONWHITE				
	Perinatal Deaths		Total Deliveries Apr. 1968 - Mar. 1969	Perinatal Rate Per 1,000 Deliveries		Perinatal Deaths		Total Deliveries Apr. 1968 - Mar. 1969	Perinatal Rate Per 1,000 Deliveries			Perinatal Deaths		Total Deliveries Apr. 1968 - Mar. 1969	Perinatal Rate Per 1,000 Deliveries		Perinatal Deaths		Total Deliveries Apr. 1968 - Mar. 1969	Perinatal Rate Per 1,000 Deliveries	
	March 1969	April 1968 - March 1969				March 1969	April 1968 - March 1969					March 1969	April 1968 - March 1969				March 1969	April 1968 - March 1969			
NORTH CAROLINA	141	1908	66631	28.6		100	1412	28022	50.4												
ALAMANCE	1	41	1232	33.3		2	19	457	41.6	PENDER	1	7	140	50.0		4	149	-			
ALEXANDER	2	12	291	41.2				43	-	PERQUIMANS		1	64	-		2	49	-			
ALLEGHANY	4	128	-	-			3	2	-	PERSON		9	248	36.3		1	9	185	48.6		
ANSON	1	7	150	46.7			12	276	43.5	PITT		16	718	22.3		27	623	43.3			
ASHE		15	303	48.5			1	3	-	POLK		6	136	44.1		3	33	-			
AVERY	2	5	226	22.1				3	-	RANDOLPH		23	1153	19.9		1	5	152	32.9		
BEAUFORT	1	12	399	30.1		2	17	232	73.3	RICHMOND		17	485	35.1		19	290	65.5			
BERTIE	1	1	125	-		3	10	268	37.3	ROBESON		1	14	607	23.1	5	62	1451	42.7		
BLADEN		8	263	30.4		1	12	210	57.1	ROCKINGHAM		2	29	994	28.2	3	28	407	68.8		
BRUNSWICK		5	290	17.2			6	156	38.5	ROWAN		5	31	1125	27.6	2	15	314	47.8		
BUNCOMBE	4	71	2136	33.2		1	8	276	29.0	RUTHERFORD		2	28	721	38.8		9	136	66.2		
BURKE	2	29	989	29.3		1	6	91	-	SAMPSON		1	13	404	32.0	1	23	353	65.2		
CABARRUS	2	31	1068	29.0		1	15	291	51.5	SCOTLAND			11	302	36.4	1	13	254	51.0		
CALDWELL	1	38	1101	34.5		1	3	94	-	STANLY		1	24	639	37.6	10	138	72.5			
CAMDEN		1	55	-			2	33	-	STOKES			11	324	34.0	2	42	-			
CARTERET	2	10	503	19.9			5	85	-	SURRY		3	26	914	28.4	6	61	-			
CASWELL	1	8	143	55.9		1	8	179	44.7	SWAIN			3	100	-	2	45	-			
CATAWBA	3	39	1456	26.8			8	227	35.2	TRANSYLVANIA		1	10	332	30.1	2	19	-			
CHATHAM	1	7	314	22.3		1	5	183	27.3	TYRRELL			1	28	-	2	27	-			
CHEROKEE	1	6	311	19.3			2	16	-	UNION		2	30	710	42.3	12	330	36.4			
CHOWAN		1	96	-			6	92	-	VANCE		4	12	286	42.0	3	18	377	47.7		
CLAY		4	94	-				1	-	WAKE		8	79	2967	26.6	3	60	1183	50.7		
CLEVELAND	2	27	944	28.6		18	434	41.5		WARREN			1	79	-	10	181	55.2			
COLUMBUS	1	15	551	27.2		2	16	344	46.5	WASHINGTON		1	4	131	-	6	161	37.3			
CRABEN	5	28	1201	23.3		25	390	64.1		WATAUGA		2	14	359	39.0		4	-			
CUMBERLAND	7	110	3563	30.9		6	74	1309	56.5	WAYNE		2	25	1077	23.2	1	33	584	56.5		
CURRITUCK			60	-			4	37	-	WILKES		1	19	749	25.4	3	50	-			
DARE		2	119	-				6	-	WILSON		1	10	552	18.1	1	30	592	50.7		
DAVIDSON	5	38	1451	26.2		13	247	52.6		YADKIN			14	373	37.5		1	29	-		
DAVIE		12	286	42.0		1	6	62	-	YANCEY			2	205	-	1	2	-			
DUPLIN		8	376	21.3		1	16	300	53.3	CITIES											
DURHAM	2	38	1479	25.7		1	28	877	31.9	City totals are also included in county totals											
EDGECOMBE	1	15	482	31.1			22	531	41.4	ALBEMARLE		4	7	175	40.0	4	20	-			
FORSYTH	3	70	2701	25.9		6	73	1144	63.8	ASHEVILLE		1	25	761	32.0	1	239	29.3			
FRANKLIN	1	4	175	-		1	16	254	63.0	BURLINGTON		1	17	538	31.6	6	140	42.9			
GASTON	2	69	2490	27.7		2	20	507	39.4	CHAPEL HILL			7	302	33.2	4	53	-			
GATES			36	-			5	101	49.5	CHARLOTTE		5	71	3160	22.5	4	80	1870	42.8		
GRAHAM		3	111	-				11	-	CONCORD		1	8	232	34.5	1	7	112	62.6		
GRANVILLE	1	11	221	49.8		2	33	365	90.4	OURHAM		2	21	963	21.8	1	24	755	31.8		
GREENE			82	-		1	10	147	68.0	EDEN			4	262	-	1	5	77	-		
GUILFORD	9	127	3672	34.6		8	97	1599	60.7	ELIZABETH CITY			5	160	31.3	1	6	96	-		
HALIFAX		6	369	16.3		2	35	625	56.0	FAYETTEVILLE			34	994	34.2	3	34	558	60.9		
HARNETT	3	21	598	35.1		1	14	335	41.8	GASTONIA		1	24	812	29.6	11	226	48.7			
HAYWOOD	3	27	704	38.4			2	22	-	GOLOSBOBO			8	326	24.5	15	275	54.5			
HENDERSON	1	23	692	33.2			1	35	-	GREENSBORO		3	51	1718	29.7	4	53	945	56.1		
HERTFORD		3	122	-		2	21	261	80.5	GREENVILLE			8	318	25.0	6	162	30.0			
HOKE		4	111	-		2	12	218	55.0	HENDERSON		2	6	127	47.0	1	9	161	55.9		
HYDE			41	-			3	57	-	HICKORY		1	7	354	10.8	7	109	64.2			
IREDELL	1	30	930	32.3		1	21	309	68.0	HIGH POINT		3	29	802	26.0	4	32	452	70.8		
JACKSON		6	244	24.6			1	44	-	JACKSONVILLE		1	13	429	30.3	1	5	-			
JOHNSTON	1	27	756	35.7		1	15	327	45.9	KINSTON			2	247	-	2	16	208	86.5		
JONES		2	72	-			3	80	-	LENDIR			6	182	35.0	1	4	47	-		
LEE		6	397	15.1			8	148	54.1	LEXINGTON		1	5	272	19.4	5	76	-			
LENOIR	1	15	557	26.9		3	27	437	61.8	LUMBERTON			4	291	-	1	14	192	72.9		
LINCOLN	1	24	531	45.2			4	94	-	MONROE			7	151	46.4	5	93	-			
MCDOWELL	3	15	533	28.1				32	-	NEW BERN		1	4	169	-	9	124	72.6			
MACON	1	5	196	25.5				6	-	RALEIGH		4	43	1502	28.6	2	34	597	57.0		
MADISON	1	6	234	25.6				3	-	REIDSVILLE			7	141	49.6	3	97	-			
MARTIN		8	210	38.1				267	52.4	ROANOKE RAPIDS			5	180	27.9	3	45	-			
MECKLENBURG	7	101	4750	21.3		9	90	2154	41.8	ROCKY MOUNT E			2	134	-	10	131	73.5			
MITCHELL		6	215	27.9				3	-	ROCKY MOUNT N			2	222	-	8	94	-			
MONTGOMERY		5	246	20.3		1	4	123	-	SALISBURY		2	9	235	38.3	7	115	60.8			
MOORE	1	12	517	23.0			8	238	32.6	SANFORD			4	172	-	1	63	-			
NASH	1	12	548	21.9		3	22	513	42.9	SHELBY			6	417	27.6	6	119	50.4			
NEW HANOVER	3	39	1095	35.6			10	406	24.6	STATESVILLE		1	7	255	27.5	1	9	130	69.2		
NORTHAMPTON			80	-			17	283	60.1	THOMASVILLE		2	6	202	29.7	4	101	-			
ONSLow	7	48	2051	23.4		4	14	411	34.1	WILMINGTON		2	20	592	33.8	10	357	28.0			
ORANGE	4	28	862	32.5			10	235	42.6	WILSON			5	291	17.2	6	16	284	56.3		
PAMLICO		1	93	-		1	2	59	-	WINSTON SALEM		2	29	1360	21.0	6	71	1078	65.9		
PASQUOTANK		6	282	21.3		1	13	193	67.4												

¹Perinatal Death Rate = $\frac{\text{fetal deaths (stillbirths of 20 weeks gestation or more) + neonatal deaths (under 28 days of life)}}{\text{total live births + stillbirths of 20 weeks gestation or more}} \times 1000$

Rates are not calculated for less than 100 deliveries or less than 5 perinatal deaths.

Correspondence

LABORATORY SCREENING

To the Editor:

While I agree with your point of view on the need for local labs, I think it should be emphasized that whatever the evolutionary changes bring to the delivery system of health care, many of these changes will be based upon our capacity to bring about regionalization of all health care, not just that closely related to laboratories.

The aging population has brought to our increased attention the entire spectrum of chronic diseases. The very nature of chronic diseases has led to the notion that early and presymptomatic diagnosis and treatment offers the patient chance of arresting or even reversing the disease process. Because of this approach, and many others, screening will become a necessity for many laboratories. Many people at the present time are looking for the ideal screening panel; this probably will never come. This is probably why we will always need people with intense interest in the medical aspect of the laboratories in order that the gray area of uncertainty will be reduced to its minimum. I think it can be said with some certainty, that screening, whatever its form may be, will be done in relation to the total hospital in the larger regional laboratories with unit type screens done at the local level.

In all our contacts with small hospitals in the field here in North Carolina, and elsewhere, we have always emphasized the need for the local laboratory, fully equipped and fully staffed, to cover immediate needs.

A. WENDELL MUSSER, M.D.
Chief, Laboratory Service

IBM Engineer Describes "Stopped" Cinematography of Multiple-Motion Subjects

A technique for "stopping" one motion and filming others that played a key role in the design of an advanced blood cell separator was described recently by an engineer from IBM Corporation's Systems Development Division Laboratory at Research Triangle Park, N. C.

The blood cell separator is a sophisticated centrifuge that continuously separates the major constituents of a patient's blood to aid in the study of cancer and leukemia. It was developed at IBM's Endicott, N. Y., laboratory under contract to the National Cancer Institute, Bethesda, Md.

Bulletin Board

COMING MEETINGS

Nineteenth Annual Session, Institute on Tuberculosis and Other Respiratory Diseases—Blue Ridge Assembly, Black Mountain, July 7-10.

Third Annual Carolina Hospital Pharmacy Seminar—University School of Pharmacy—Chapel Hill, September 6-7.

North Carolina and South Carolina Ophthalmology and Otolaryngology Society, Joint Meeting—Ocean Forest Hotel, Myrtle Beach, South Carolina, September 14-16.

Symposium on Medicine and Religion—University of North Carolina School of Medicine—September 8-9.

NEWS NOTES FROM THE UNIVERSITY OF NORTH CAROLINA SCHOOL OF MEDICINE

The L. P. McLendon Scholarship in Medicine has been established at the University of North Carolina in Chapel Hill.

Established by Major L. P. McLendon of Greensboro over a period of years and augmented by memorial funds to Major McLendon following his death in 1968, the endowment fund will produce sufficient funds annually to pay for a scholarship for a deserving medical student.

The medical student selected will be preferably from four North Carolina counties: Durham, Guilford, Orange, or Anson. Major McLendon lived or practiced law in each of these counties during his long service as an attorney in the state.

* * *

The Joint Commission on Accreditation of Hospitals has granted accreditation to the North Carolina Memorial Hospital for the next three years.

Accreditation is based on the provision of high quality medical and hospital care in all services and in the maintenance of the safety and welfare of the patient. The medical and nursing staffs are also investigated.

* * *

A prominent Durham surgeon and his two daughters have endowed a continuing lectureship in surgery at the University of North Carolina at Chapel Hill and Duke University.

In a joint announcement, UNC Chancellor J. Carlyle Sitterson and Duke President Douglas M. Knight acknowledged receipt of funds for this purpose from Dr. Hunter Sweaney of Durham and his daughters, Mrs. Mary Sweaney Andersen and Miss Betty Sweaney, both of Chapel Hill.

To be known as the "Dr. Hunter Sweaney Visiting Lectureship in Surgery," the endowment provides funds so that renowned surgeons from all parts of the world may be brought to the two campuses to share their knowledge and experience with students of medicine, particularly those specializing in surgery.

* * *

Dr. Karl Menninger, co-founder of the famous Menninger Clinic in Topeka, Kan., addressed faculty

members of the School of Medicine and Department of Psychiatry at the University of North Carolina recently.

Dr. Menninger is chairman of the board of the Menninger Foundation, founded in 1941 as a non-profit training, research and public health institution in psychiatry and psychology.

* * *

The largest and best equipped x-ray therapy center for cancer treatment in the entire southeast opened on the University of North Carolina campus in April.

The new facility will be part of the medical school's division of radiation therapy affiliated with the North Carolina Memorial Hospital and will be located in the basement of the ambulatory patient care facility, now nearing completion.

* * *

Director of the Division of Radiotherapy is Dr. G. E. Hanks who joined the UNC faculty in September.

The new facility will be equipped with a 25-million-volt betatron, the first in the state, a super-voltage cobalt machine, and conventional x-ray equipment. Total cost of the equipment is \$387,000.

* * *

Dr. Theodore R. Oldenburg has been appointed chairman of the Department of Pedodontics at the UNC School of Dentistry.

The Pedodontic Department specializes in dentistry for children.

Dr. Oldenburg replaces Dr. Roy L. Lindahl, who resigned to accept another position as chief of the Dental Experimental Practice Unit for the UNC Health Service Research Center. He is also director of Continuing Education for the School of Dentistry.

* * *

A \$125,000 grant to the University of North Carolina School of Medicine by the Burroughs Wellcome Fund of Tuckahoe, N. Y., was announced recently to support teaching and research in clinical pharmacology under the direction of Dr. Harold J. Fallon, Jr.

Dr. Fallon, an associate professor of medicine in the UNC School of Medicine, becomes the 16th Burroughs Wellcome Scholar in Clinical Pharmacology. He is chief of the Division of Clinical Pharmacology, Toxicology, and Environmental Health and vice chairman of the Department of Medicine at the University of North Carolina School of Medicine.

* * *

Dr. Christopher C. Fordham III, associate dean of the University of North Carolina School of Medicine, has accepted the appointment by the Board of Regents of the University System of Georgia as vice-president for medicine and dean of the School of Medicine at the Medical College of Georgia, effective August 1, 1969.

A native of Greensboro, North Carolina, Dr. Fordham presently serves as professor of medicine and associate dean of the School of Medicine in Chapel Hill.

He has been a member of the faculty at the University of North Carolina since 1958 and has held positions in medicine as instructor, assistant professor, associate professor, and assistant dean. He has been a full professor and associate dean of the School of Medicine since 1968.

Dr. Benson Reid Wilcox has been appointed chief of the Division of Cardiac and Thoracic Surgery at the University of North Carolina School of Medicine. He succeeds Dr. Richard M. Peters who resigned to accept a position in San Diego, Calif.

An associate professor of surgery, Dr. Wilcox's research interests are in the circulation of blood through the lungs in various forms of heart disease. Recently he was awarded a three-year \$90,000 grant from the National Institutes of Health to continue efforts to apply biomathematics and computer techniques to the study of blood circulation in the lungs.

* * *

A University of North Carolina physical education professor will co-direct a workshop on Physical Activity and Cardiovascular Health at the University of Montana July 14-18.

Dr. Carl Blyth, director of UNC's Laboratory of Applied Physiology, will work with Dr. William Haskell, director of Program Development for the President's Council on Physical Fitness and Sports.

Participation in the workshops will be part of Blyth's duties as Distinguished Visiting Professor of Health, Physical Education and Recreation during Montana's summer session.

* * *

Most of the pathology and autopsy support for the county ME's is provided by a network of 30 regional pathologists across the state. Twenty of these have already been appointed by Dr. Hudson and are now serving. These men serve one of the same functions as the office of the chief ME—performing autopsies on the more difficult cases confronting the county MEs.

* * *

The Third Annual Carolina Hospital Pharmacy Seminar will be held on the University of North Carolina campus here Sept. 6-7.

The conference, one of the few seminars in the Southeast geared to practicing hospital pharmacists, is sponsored by the UNC School of Pharmacy and the N. C. Society of Hospital Pharmacists.

* * *

Medical alumni from throughout the nation met here in April for the University of North Carolina Medical Alumni Association's annual meeting.

Featured speakers included Archie Davis, chairman, Board of Directors, Wachovia Bank and Trust Co., and Dr. William N. Hubbard Jr., dean, University of Michigan Medical School.

* * *

Dr. Johan Eliot, professor of population at University of Michigan, chided North Carolina abortion laws here for not taking into account "the socio-economic reasons" for abortion.

Dr. Eliot, here to speak before the first national family planning conference for nurses, said in an interview that such laws "which stick to medical reasons for abortion deal only with 5% or less of all abortion cases."

"They do not take into account," he said, "how an unwanted pregnancy can drastically alter the entire future life of a young woman. Nor do they consider the

woman with more children than she can care for," he said.

"These cases constitute more than 95% of all those who request abortions," he continued.

Dr. Eliot thinks the worst aspect of the North Carolina law is its clause setting geographical restrictions. "It is real cruelty," he said, "to deny women the right to seek medical care where they want it—and to seek it in privacy by going out of state."

* * *

Some 200 persons attended the 13th annual Parents Day here at the University of North Carolina School of Medicine on April 12.

The day's program included speeches by students and faculty and tours of the medical school and hospital facilities.

* * *

A dedication conference celebrated the opening of the University of North Carolina's new x-ray therapy center with five distinguished cancer treatment specialists from the United States and Canada speaking.

Now the largest and best equipped x-ray therapy center for cancer treatment in the entire southeast, the new facility will be part of the UNC Medical School's Division of Radiation Therapy, affiliated with North Carolina Memorial Hospital.

* * *

Speaking before representatives of the 69,000 member Student American Medical Association (SAMA) in Chicago, C. Clement Lucas of Lucama, N. C., called for the organization to support proposals for national health insurance.

In his annual report before stepping down as national president of that organization, the University of North Carolina Medical School senior said, "SAMA must be concerned with the detailed planning and delivery of health care services in this country."

He urged the adoption of "graduated insurance plans for various economic levels to ensure that every person can now receive the health care we are presently able to give."

* * *

Don Gabriel thrives on the kind and amounts of work that would make other students throw up their hands in despair.

Gabriel, a second-year graduate student at the University of North Carolina here, is working simultaneously on an M.D. and a Ph.D. He plans to finish the Ph.D. next year and the medical degree two years later.

In addition, he is a member of the Medical School's Whitehead Society, president of his Medical School class, holds a Life Insurance Medical Research fellowship, and is involved in research on protein side chain interaction.

NEWS NOTES FROM THE BOWMAN GRAY SCHOOL OF MEDICINE OF WAKE FOREST UNIVERSITY

Dr. C. Douglas Maynard, assistant professor of radiology, has been appointed assistant dean for stu-

dent affairs at the Bowman Gray School of Medicine. The appointment will become effective July 1.

The new position is one of two established through a recent reorganization of the medical school's central administration. Dr. Robert L. Tuttle, former associate dean, was appointed academic dean in January.

Dr. Maynard will continue to serve as chief of nuclear medicine, a position he has held since 1965 when he joined the faculty. As assistant dean, his primary responsibilities will be in the areas of medical student admissions and student affairs.

* * *

Three members of the Bowman Gray faculty will be promoted to the rank of full professor, effective July 1. They are Dr. Damon D. Blake, radiology; Dr. Richard G. Weaver, ophthalmology; and Dr. Joseph E. Whitley, radiology.

They are among 10 members of the medical school's full-time faculty for whom promotions have been approved. Advanced to associate professor were Dr. Arthur Wainer, biochemistry; Dr. Henry Drexler, microbiology; Dr. Monroe Cole, neurology; Dr. Zelma Kalnins, clinical cytology; Dr. A. Sherrill Hudspeth, surgery; and Dr. Clair E. Cox II, urology. Dr. Timothy C. Pennell was promoted to assistant professor of surgery.

Members of the part-time faculty who will receive promotions are Dr. Delmar E. Bland, Dr. Donald Hartzog, Dr. Benjamin F. Martin, and Dr. Thomas B. Templeton, all to assistant professor of clinical medicine; Dr. Robert S. Brice Jr., to instructor in clinical medicine; and Dr. Jack M. Rogers, to instructor in clinical psychiatry.

* * *

Dr. Courtland H. Davis, Jr., professor of neurosurgery at the Bowman Gray School of Medicine, was installed May 3 as president of the Neurosurgery Society of America. The organization held its 22nd annual meeting in Key Biscayne, Fla.

Dr. Davis was secretary of the society for six years before being elected president-elect last year. He succeeded Dr. Frank P. Smith of Rochester, N. Y.

The society's primary objective is the advancement of neurological surgery through the exchange of ideas and information at the national and international levels. Membership is limited to 80 neurosurgeons, approximately half of whom are connected with medical schools.

* * *

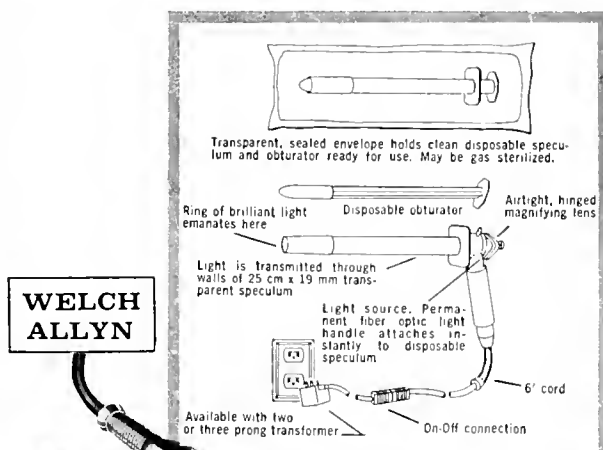
Dr. Felda Hightower, professor of surgery, recently was installed as president of the Southeastern Surgical Congress. He succeeded Dr. Benjamin F. Byrd, Jr. of Nashville, Tenn.

Dr. Hightower is a past president of the North Carolina Chapter, American College of Surgeons, and has served as president of the North Carolina Surgical Association and the Forsyth County Medical Society.

He also is a member of the board of governors of the American College of Surgeons and is treasurer of the Southern Surgical Association.

* * *

Dr. Richard L. Masland, speaking recently at the



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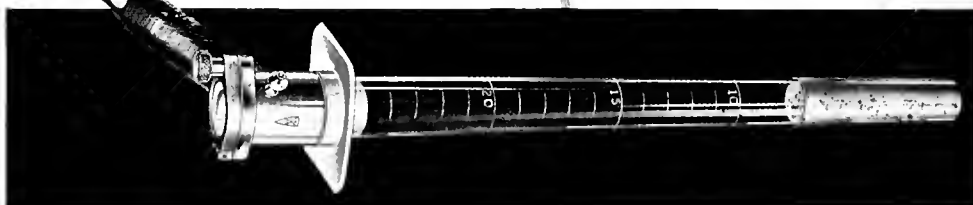
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Bowman Gray School of Medicine as a Richard J. Reynolds Lecturer, said that results from a study, involving 14,000 four-year-old children, indicate that an individual's intelligence is largely dependent upon three factors: inherited capabilities, social-environmental experience, and the impact of disease or injury.

Dr. Masland, a former member of the Bowman Gray faculty, is professor and chairman of the Department of Neurology at Columbia University College of Physicians and Surgeons. He initiated the study while serving as director of the National Institute of Neurological Diseases and Blindness.

* * *

R. McPhail Herring, Jr. of Clinton, a fourth-year student at the Bowman Gray School of Medicine, has been awarded the Outstanding Reynolds Scholar Award by the Z. Smith Reynolds Foundation.

William R. Lybrook, president of the foundation, presented the \$1,000 award to Herring May 9 at the annual Reynolds Scholarship Awards Dinner. The award is given annually to the outstanding Reynolds Scholar in the Bowman Gray graduating class.

Eight North Carolina college students, who will enter the Bowman Gray School of Medicine in September, were awarded Reynolds Scholarships to support five years of medical education.

They are David S. Anderson of Thomasville, D. Eric Blackwell of Mars Hill, Robert H. Butler of Gastonia, C. Samuel Fulk of Pilot Mountain, Kenneth R. Gallup, Jr. of Sanford, J. Gregg Hardy of Lexington, Paul A. Holyfield of Mount Airy, and J. Lawrence Rouse 111 of High Point.

* * *

Dr. Emery C. Miller, Jr., associate professor of medicine at the Bowman Gray School of Medicine, has been elected president of the North Carolina Diabetes Association. He was chosen at the second annual meeting of the organization in Charlotte. The primary function of the association is to promote a better understanding of diabetes by educating the diabetic and his family.

* * *

Dr. Timothy C. Pennell, instructor in surgery, is the recipient of a gold medal award from the Southeastern Surgical Congress for his paper related to transplantation of the pancreas.

His paper, "Blood Flow Measurements in Canine Pancreatic Allografts," was one of 10 selected from 56 papers on original surgical research. He presented the paper at the annual meeting of the congress in New Orleans.

Dr. Pennell's research was aimed at determining the best method of connecting the arteries and veins in the pancreas during transplantation.

* * *

Dr. Michael Stein, resident in surgery, recently received two awards for a paper he presented at the Student American Medical Association-University of Texas National Research Forum in Galveston, Texas. The paper, "Hemodynamic and Anatomic Observations Following Experimental Myocardial Infarction and

Infarctectomy," received the first-place Mead-Johnson Award for the best paper presented at the forum and the second-place award in the competition for submitted manuscripts.

The paper reports on research, conducted by Dr. Stein and Dr. A. Robert Cordell, associate professor of surgery, which indicates that the surgical removal of dead heart muscle, resulting from myocardial infarction in experimental animals, can improve heart performance.

* * *

Clyde T. Hardy, associate dean, was the keynote speaker for the annual conference of the Canadian Association of Medical Clinics April 17 in Montreal, Canada. He also led a panel discussion on "Problems of Patients."

* * *

Dr. Richard Janeway, assistant professor of neurology, participated in an International Symposium on "Clinical Applications of Isotope Clearance Measurement of Cerebral Blood Flow" April 8-14 in Mainz, Germany. He presented a paper on "Clinical Applications of a Gamma Camera in the Evaluation of Patients with Cerebrovascular Disease."

* * *

Dr. Thomas B. Clarkson, professor and director of the Department of Laboratory Animal Medicine, was a session chairman for the Fourth International Symposium on Laboratory Animals, held recently in Washington, D. C.

* * *

Six papers, prepared at the Bowman Gray School of Medicine, were presented at the 53rd annual meeting of the Federation of American Societies for Experimental Research in Atlantic City, N. J. Presenting papers were Dr. B. Moseley Waite, assistant professor of biochemistry; Dr. David Deitchman, research associate in pharmacology; W. Carter Alexander, graduate student in physiology; Dr. Joseph P. Buyniski, instructor in physiology; Dr. Benito Galindo, research assistant in microbiology; and Dr. Thomas A. Lesh, cardiovascular trainee.

* * *

Dr. Richard C. Proctor, professor and chairman of the Department of Psychiatry, spoke at a recent symposium on "Emotional Basis of Illness—Man, the Mature Years and Beyond" in Chicago, Ill.

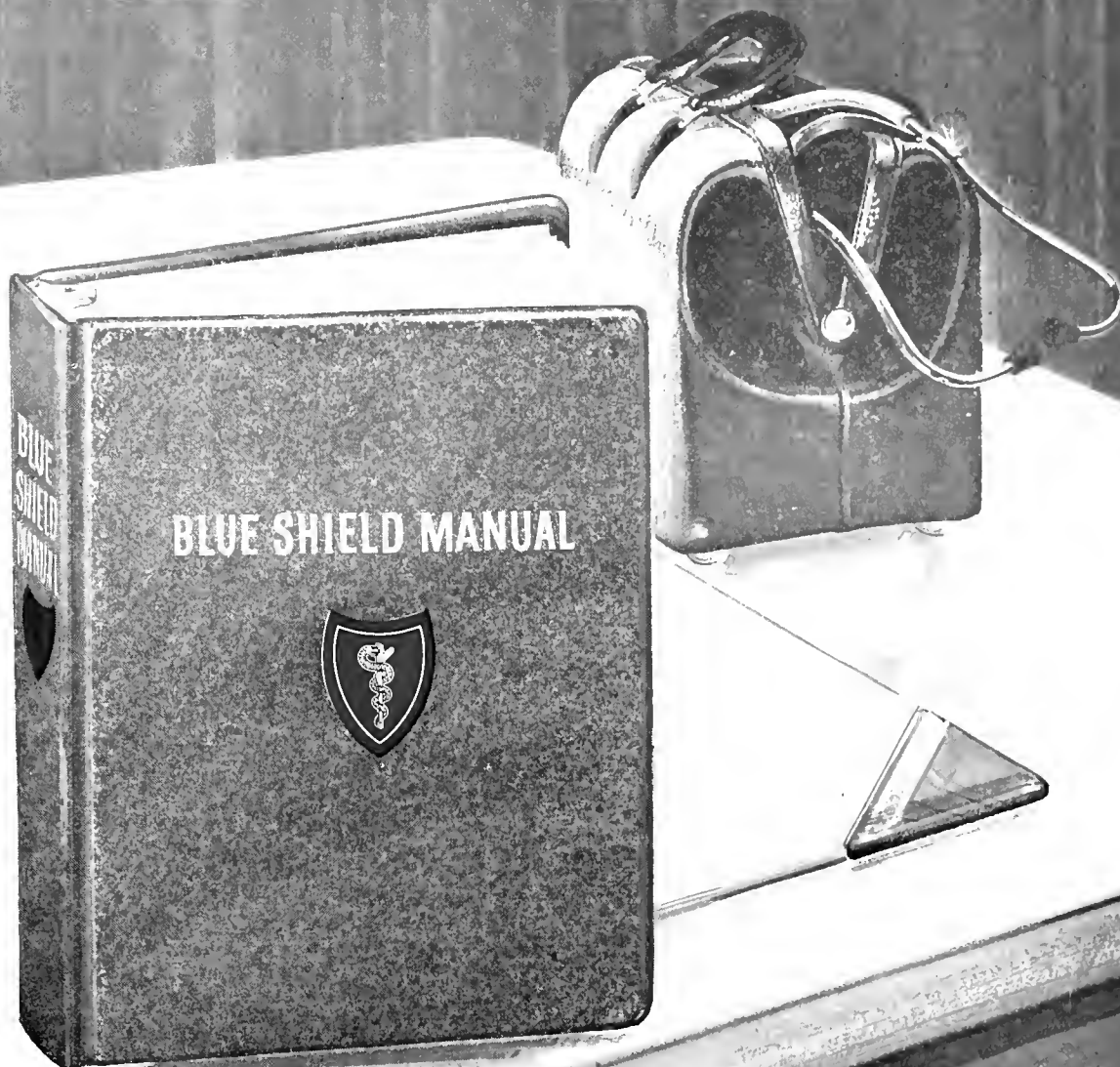
* * *

Five anatomists from the Bowman Gray School of Medicine participated in the program of the annual meeting of the American Association of Anatomists in Boston, Mass. They were Dr. Norman M. Sulkin, professor and chairman of the department; Dr. Walter J. Bo, professor; Dr. Charles E. McCreight, associate professor; Dr. L. Louise Odor, associate professor; and Mrs. Dorothy F. Sulkin, research associate.

* * *

Dr. Robert E. Robinson III, research instructor in medicine, spoke on "Computers in Medicine" April 21 during a television panel at a meeting of the American College of Physicians in Chicago.

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Dr. John A. Stanley, assistant professor of ophthalmology, presented lectures on "Special Techniques in the Neuro-Ophthalmologic Examination" April 22 at a meeting of the American Academy of Neurology in Washington, D. C.

NEWS NOTES FROM THE DUKE UNIVERSITY MEDICAL CENTER

More than 100 physicians from throughout the United States attended a recent three-day program on heart disease presented by the American College of Cardiology and the Duke University School of Medicine.

Titled "Ischemic Heart Disease: A Therapeutic Challenge," the event was coordinated by Dr. Henry D. McIntosh, professor of medicine and chief of the cardiovascular division at Duke, and by Dr. Joseph C. Greenfield, associate professor of medicine and chief of the cardiovascular service at the VA Hospital in Durham.

* * *

Dr. Nicholas G. Georgiade, professor of plastic and maxillofacial surgery at the Duke University Medical Center, has been elected to the American Board of Plastic Surgery.

In the past few weeks Dr. Georgiade has presented some of his original work in the management of orofacial deformities at the International Congress on Cleft Palate in Houston and scientific papers at the American Society of Maxillofacial Surgeons and the American Association of Plastic Surgeons in San Francisco.

Past president of the American Society of Maxillofacial Surgeons, he is author of more than 115 scientific papers. He is editor of a forthcoming text on maxillofacial injuries and is contributing author to texts in plastic surgery.

* * *

More than 50 scientific investigators from the United States, Canada, England and Germany met in Wrightsville Beach, N. C., May 19-20 for the Third International Cell Cycle Conference sponsored by Duke University.

The two previous conferences were held at the Oak Ridge National Laboratory at Oak Ridge, Tenn.

The scientists discussed the molecular and development aspects of the cell cycle on a wide spectrum of biologically and medically significant cell types.

The conference was organized by a committee under the chairmanship of Dr. George M. Padilla, associate professor of physiology and pharmacology at Duke.

Dr. Kenneth McCarty, professor of biochemistry at Duke, moderated a session which dealt primarily with studies of vertebrate cells. Dr. R. W. Turkington, assistant professor of medicine at Duke, presented a talk on "Hormonal Regulation of Nuclear Protein Metabolism During Mammary Gland Differentiation in Vitro."

The conference closed with a summation of the proceedings by Dr. J. D. Robertson, professor and chairman of Duke's Department of Anatomy. The proceedings will form the basis of a monograph to the pub-

lished by Academic Press under the editorship of Dr. Padilla.

* * *

Six assistant professors have been named at Duke University Medical Center. Four were promoted from other positions while the remaining two are new appointments. The six are:

Dr. Sheila J. Counce, from an associate in anatomy and research associate in zoology, to assistant professor of anatomy. She will retain her research associate position.

Dr. John A. Gehweiler, Jr., from an associate in radiology to assistant professor in the department.

Dr. D. Robert Howard, from an associate in the Department of Community Health Sciences to assistant professor.

Dr. Jerome Ruskin, from associate in medicine to assistant professor.

Appointed assistant professor of physiology in the Department of Physiology-Pharmacology was Dr. Stephen J. Hersey.

Dr. Hersey received his B.A. degree from Cornell University and his Ph.D. in physiology at Duke in 1968. He was a postdoctoral U. S. Public Health Service trainee prior to his appointment.

New assistant professor in the division of orthopaedics is Dr. James R. Urbaniak. He is a graduate of the University of Kentucky and received his M.D. degree from Duke in 1962. He was formerly chief resident in orthopaedics at Duke.

* * *

Four faculty members at Duke University Medical Center have been named to additional positions within the medical center.

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60 - 64*	66.50	148.00	159.00
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Dr. Saul Boyarsky, professor of urology and assistant professor of physiology, has been named director of rehabilitation. He will be in charge of a urology rehabilitation unit to be housed in a facility now under construction at the medical center campus.

Dr. Stanley H. Appel has been awarded the title of associate professor of biochemistry in addition to his present position as associate professor of neurology.

Dr. Euydam Osterhut, presently associate professor of microbiology and assistant dean for admissions, has been named associate professor of medicine. He was formerly assistant professor of medicine.

Dr. Andrew G. Wallace, now associate professor of medicine, has been given additional responsibility as assistant professor of physiology.

SYMPOSIUM ON MEDICINE AND RELIGION

A symposium on medicine and religion entitled "Dialogue and Dilemma" will be held at the University of North Carolina School of Medicine in Chapel Hill, Monday and Tuesday, September 8 and 9, 1969.

This will be the second program bringing clergymen and physicians together for joint discussion of problems of mutual concern. It is sponsored by the Committee on Medicine and Religion of the North Carolina State Medical Society, the School of Medicine, and the Department of Medicine and Religion of the American Medical Association. The program will include nationally known speakers, both physicians and clergymen, and will provide opportunity for informal discussions in small groups.

Interested clergymen and physicians are cordially invited, and it is particularly hoped to have "teams" of physicians and clergymen from the same community. Detailed programs and information will be available about July 1. Further information may be secured from

Office of Continuation Education
U. N. C. School of Medicine
Chapel Hill, North Carolina 27514

NORTH CAROLINA HEART ASSOCIATION

The first twenty years of dynamic achievement are reviewed in the American Heart Association's Annual Report just released. Entitled "Twenty Years of Achievement" this report reviews briefly the medical situation in 1948 and details the advances that have been recorded since that date.

Anyone desiring a copy of this publication may receive one by addressing an inquiry to the North Carolina Heart Association, 1 Heart Circle, Chapel Hill, N. C. 27514.

NORTH CAROLINA DEPARTMENT OF PUBLIC WELFARE

The publication "A Guide to Services for the People of North Carolina," Second Edition, June 1968, is available in single copies by writing the N. C. Department of Public Welfare, Box 2599, Raleigh, N. C. 27602. This is an excellent resource reference which has been de-

veloped on the state level under the summer intern program of state government.

In addition to listing general health services, the booklet covers other services to children, elder citizens, the handicapped, the mentally ill, communities and the jobless. There is also a chapter on real estate loans.

SOUTHERN MEDICAL ASSOCIATION

The Section on Neurology and Psychiatry of the Southern Medical Association announces the election of the following officers to serve for the coming year: Joseph B. Parker, Jr., M.D., Lexington, Ky., Chairman; William P. Wilson, M.D., Durham, N. C., Chairman-Elect; and Charles E. Wells, M.D., Nashville, Tenn., Secretary.

The officers will be responsible for arranging the program for the Section on Neurology and Psychiatry for the 63rd Annual Meeting of the Association, which will be held in Atlanta, Georgia, November 10-13, 1969. Anyone wishing to participate in the program should contact the Secretary of the Section, Dr. Charles E. Wells, Vanderbilt University Hospital, Nashville, Tenn. 37203. Applications for scientific exhibit space can be obtained from Southern Medical Association, 2601 Highland Avenue, Birmingham, Alabama 35205.

The Southern Medical Association, one of the largest general medical organizations in the country, embraces sixteen southern states and the District of Columbia. Annually the Association holds a scientific meeting which draws an attendance of some 4,000-6,000. The Association also owns and publishes the SOUTHERN MEDICAL JOURNAL monthly, and the SOUTHERN MEDICAL BULLETIN, a quarterly publication. Primarily a service organization for physicians, the exclusive purpose of the Southern Medical Association is to develop and foster scientific medicine.

AMERICAN COLLEGE OF EMERGENCY PHYSICIANS

The increasing patient loads in emergency departments across the country has underscored the need for a new type of physician—a specialist in emergencies: the emergency physician.

To assist this new breed of physicians the American College of Emergency Physicians was organized in August, 1968.

At a meeting in Chicago on February 7 and 8, 1969, further steps were taken to widen the scope of the new specialty group. Representatives from 19 states were present to help plan the future of the college.

One of the main purposes of the organizations to improve emergency services rendered to the patient. Other aims are to encourage and implement the training and continuing education of emergency physicians; to promote policy which preserves the integrity of private practice; to promote coordination of community emergency care facilities and personnel; to advance the ethical standards of the private practice of emergency medicine and surgery.

AMERICAN ASSOCIATION FOR LABORATORY ANIMAL SCIENCE

More than 2,000 persons are expected to attend the 20th annual session of the American Association for Laboratory Animal Science, October 13-17, 1969, in Dallas.

NATIONAL INSTITUTES OF HEALTH

The appointment of three senior staff officers of the NIH National Cancer Institute was announced today by Dr. Kenneth M. Endicott, Institute Director.

Dr. Jesse L. Steinfeld, who came to the National Cancer Institute from the University of Southern California last year as Associate Director for Program, becomes the Institute's first Deputy Director. Dr. Nathaniel I. Berlin, appointed Scientific Director for General Laboratories and Clinics, will continue to serve also as Clinical Director. Louis M. Carrese becomes Associate Director for Program Planning and Analysis, having served as deputy to Dr. Steinfeld in that area.

* * *

The cooperation of physicians is requested in a continuing study of chronic myelogenous leukemia being conducted by the Medicine Branch of the National Cancer Institute at the Clinical Center, National Institutes of Health, Bethesda, Maryland.

Referrals of patients with chronic granulocytic myelogenous leukemia are needed. Patients of all ages with high white blood cell counts and platelet counts are needed for studies of newer chemotherapeutic agents and as a source of white cells and platelets for in vitro and in vivo study.

Physicians who wish to have their patients considered for the study may write or telephone:

George P. Canellos, M.D.
Clinical Center, Room 12N-236
National Institutes of Health
Bethesda, Maryland 20014

The Month in Washington

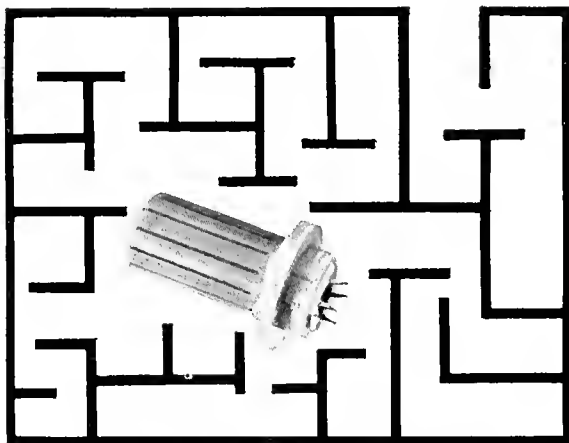
Health, Education and Welfare plans to impose Blue Shield schedules for physicians under Medicaid and to limit payments to hospitals under Medicaid and Medicare drew strong responses from the American Medical Association and the American Hospital Association.

Dr. Dwight L. Wilbur, president of the AMA, urged in a letter to Robert H. Finch, HEW Secretary, that all segments of the health care field be consulted in effecting economies in government-paid health services.

"The American Medical Association is eager to make available to your office the composite experience and judgment of the nation's physicians, who are the principal providers of health care to all the people," Dr. Wilbur said. "The needs and problems of patients in all walks of life, at all income levels, come to their attention, in composite, more than a billion times a year.

"It has always been a principle of both the humanity and the professional code of the physician that no one shall ever be denied quality health care because of his inability to pay. The present concern is how this universal care can best be provided within a viable economic system and in the face of burgeoning demand for medical manpower, services, and facilities. . . .

Dr. Wilbur wrote Finch following the HEW announcement that federal spending on the Medicaid-Medicare programs would be trimmed by \$328 million through imposing Medicaid fee schedules based on prevailing Blue Shield rates, limiting mental illness benefits under Medicaid and cutting down



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hospital overhead allowances in Medicaid and Medicare.

Concerning the imposition of Blue Shield rates as fee schedules under Medicaid, Dr. Wilbur warned in an address before the American Society of International Medicine in Chicago that a later step "might be that of physicians in groups in salary and abandonment of the fee-for-service principle." He said that physicians, in combating such government efforts, must accept the major responsibility of keeping fees as moderate as possible.

* * *

The American Hospital Association protested in a letter to President Nixon against removal of the two percent overhead allowance for hospitals. Officially representing the AHA, Ray R. Eppert, Detroit, Mich., hospital trustee, said in a memorandum accompanying the letter to Nixon:

"The recent announcement of a reduction in Medicare reimbursement poses a serious threat to institutional integrity and, therefore, to the ability of hospitals to serve the sick and injured of this nation. Hospitals

have been repeatedly assured at the highest levels of government that Medicare changes would not be made without consultation with their designated representative, the American Hospital Association.

"The department apparently deemed it unnecessary to consult with the hospital field, and, as far as can be determined, made no serious study of the effect of the proposed reduction on hospitals. Payment of nothing but raw costs will lead . . . to the serious underfinancing of our hospitals."

* * *

The Joint Commission on Mental Health of Children is recommending a broad program aimed at bettering the health of the nation's children and youths at an estimated cost of \$6 billion to \$10 billion a year.

The Commission recently disclosed its recommendations to the annual meeting of the American Psychiatric Association in advance of its report to Congress. The 54-member commission—which has completed a three-year \$1.5 million study—was established by Congress in 1965.

Sen. Abraham A. Ribicoff (D., Conn.),

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who introduced the legislation to set up the committee, said he would promptly introduce legislation to carry out the commission's recommendations.

The recommendations included national health insurance for persons up to 21 or 25 years old; family planning and birth control; prenatal care; pediatric care for children up to age of three, and physical and mental health services for older children.

* * *

The chairman of the AMA Committee on Alcoholism and Drug Dependence estimated that 5% of U. S. college students have tried LSD and 20% of high school and college-age youths have experimented with marihuana and other hallucinogenic drugs.

The chairman, Dr. Henry Brill of Long Island, N. Y., made the estimate in testimony before the Senate Health Subcommittee.

"And," he added, "although no accurate count has been made, there are signs that the abuse of heroin and other so-called 'hard' narcotics is spreading into the suburbs."

Dr. Brill told the subcommittee that the nation's physicians increasingly "are being called upon to treat patients with drug problems, and to give counsel to anxious and bewildered parents who are discovering that 'it can happen' to their sons and daughters."

He emphasized the need for more research in the narcotics field.

New Pamphlet Warns Against Health Cultists and Quacks

The old-fashioned spieler selling magical cures for all ills has practically disappeared from the American scene. But more modern pitchmen are still bilking the

public out of more than \$2 billion a year for questionable treatments. Even more serious is the consequent loss of precious time before reliable medical care is sought.

The victims of odd-ball diets, off-beat treatments, or, at best, useless pills, capsules, and liquids come from every educational and economic level. The pseudo-scientific quacks and health cultists to whom millions fall prey are exposed in FADS, MYTHS, QUACKS—AND YOUR HEALTH, a new Public Affairs Pamphlet by Jacqueline Seaver. The pamphlet is available for 25 cents from the Public Affairs Committee, 381 Park Avenue South, New York, N. Y. 10016.

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Physicians—2 vacancies on staff. Salary range staff physician \$14,472-\$23,472; staff psychiatrist \$18,420-\$27,180. 40 hour week, 3 weeks vacation, sick leave, and retirement. Contact R. L. Rollins, Jr., M.D., Dorothea Dix Hospital, Raleigh, North Carolina 27602.

